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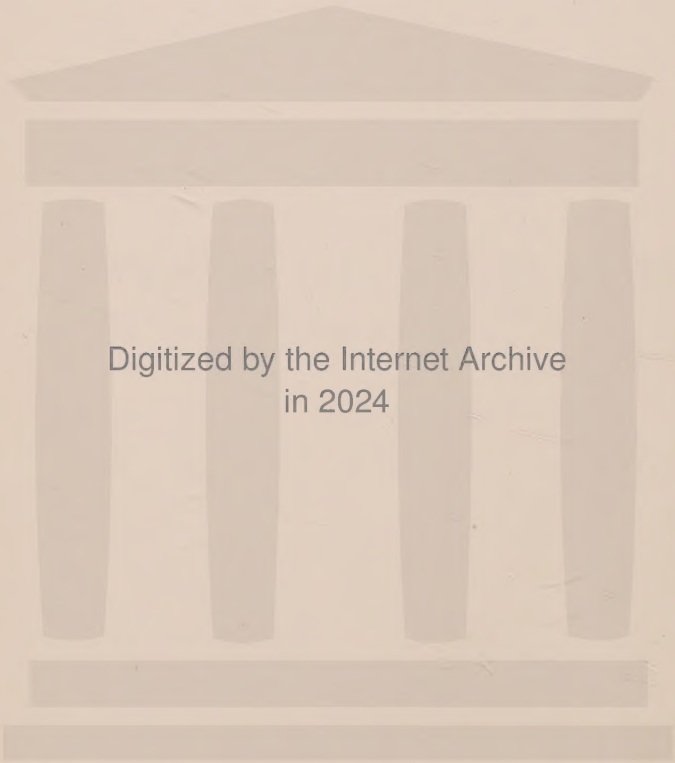
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TOLUCA.—MONUMENT TO CHRISTOPHER COLUMBUS.

MEXICO

OF

THE TWENTIETH CENTURY

BY

PERCY F. MARTIN, F.R.G.S.

AUTHOR OF "THROUGH FIVE REPUBLICS OF SOUTH AMERICA,"
"MEXICO'S TREASURE HOUSE," ETC.

IN TWO VOLUMES
VOLUME II.

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ERRATA

On page 11, line 4, *for* "San Cristobal" *read* "Pichucalco."
On page 18, line 23, *for* "Terresas" *read* "Terrazas."
On page 72, line 7, *for* "26,000" *read* "934,463."
On page 173, lines 1 and 19, *for* "haciendado" *read* "hacendado."
On page 206, line 6, *for* "terra" *read* "tierra."
On page 250, line 9, *for* "haciendado" *read* "hacendado."
On page 258, line 28, *for* "some" *read* "same.'

MEXICO
OF THE XXTH CENTURY

CHAPTER XXXVI

STATE OF AGUASCALIENTES: Area and rainfall—Industrious population—Mineral resources—City of Aguascalientes—Feast of San Marcos—Great bathing day of St. John the Baptist—Trade and industry—Drawn-work—Popularity among visitors—A remarkable toilette—United States customs and drawn-work—Public buildings—Governor's palace—Electric tramways—Telephones—Telegraph—Chamber of commerce—Education and the Government.

IN point of actual size, the State of Aguascalientes is one of the smallest; but, in compensation, Nature has endowed it more richly than many others, and taking it all-in-all, it is not only one of the most-favoured but one of the best-governed and most prosperous divisions of Mexico. It occupies almost the centre of a large central plateau, a very advantageous one from a climatic and agricultural point of view. However Aguascalientes escaped being to-day part of Zacatecas is more than I know; but inasmuch as the latter State surrounds it on the north, west and north-east, it seems as if originally Aguascalientes had been intended to be a portion of its huge neighbour.

The total area of the State is 7,692 square kilometres, and practically the whole of it is under some form of cultivation. The western and central portions are irrigated by a number of rivers and brooks, while the eastern portion is in the hands of a thriving population, who make the most of their opportunities. To the east and south-east stretch the plains of Tecuán. These, however, are the only parts of the State which cannot be reckoned as of any great value, since they

are lacking in water. Nevertheless many *haciendas* (plantations) and *ranchos* (cattle ranches) are found there, and they seem to do fairly well.

The rainfall throughout the State is moderate except over these same eastern plains. The aridness of this region is in striking contrast to the splendid river courses which are found in the western and central portions of the State. There is, for instance, the Rio San Pedro, which is also known under the names of the Aguascalientes and the Rio Grande. This splendid watercourse has its source south of the Zacatecas mountain-chain, entering the State on the north, and after traversing its entire extent from north to south, flowing on into the State of Jalisco. There are also the rivers Pabéllon, Santiago, Morcinique, Tepezalilla, Calvillo, Chicaloté, Labor and Téjas, in addition to a large number of lagoons or swamps, which, however, are of no value.

With so much water on hand it is not surprising to find the *flora* of the State a particularly representative and luxuriant one. There are nearly 140 different species of wild trees, in addition to 48 kinds of fruits, among others 20 varieties of pears, figs, grapes, etc.; a dozen different textile plants, several classes of tanning-barks, leaves and roots; oleaginous seeds or berries, dye-plants, forage-plants, and a hundred different kinds of medicinal plants. All classes of animals—birds, reptiles, fishes and insects—flourish apace in Aguascalientes, the different species of birds alone numbering 58.

The inhabitants of Aguascalientes, including a large number of foreigners, are among the most industrious and prosperous in the country. As intimated, agriculture is the greatest industry, but stock-raising, commerce and mining have also their own important places. On the other hand, mining, which at one time was expected to have shown signs of promise, has been practically abandoned. Minerals include copper, lead and magistral, the former being most abundant at Asientas, and the latter at Tepezalá, where at some near date active mining will commence; but nevertheless the total number of copper and silver mines in operation at the present time probably does not exceed 10 or 12, nor is their total production much in excess of a million dollars (Mexican) in value (about £100,000).

As the name suggests—*aguas calientes*, literally "hot waters"—there are numerous natural springs to be found within its borders. The principal of these are in the Capital, bearing the same name as the State, and known as the waters of San Nicolás de la Cantera, the Ojo Caliente, the Ojo Calientillo and the Colomo. The temperature of the springs in the various localities varies from 30° to 40·50° C. (=86° to 105° Fahrenheit). The hot water runs through the streets of the town near the Railway Station, and here, in the broad ditches, the women come to wash their clothes. Bathing there is forbidden, since many free covered bath-houses exist, and are fairly well patronised.

The great event of the year is Saint John the Baptist's Day, when every man, woman and child bathes—in some cases perhaps for the first time in the preceding twelve months—the applicants being received and dismissed in batches, and controlled by the police or soldiery. Another notable day is the feast of San Marcos, observed on April 23rd, when the entire population gives itself up to merriment and gambling, the Mexican game being licensed for the one occasion, and serving to completely bankrupt the greater portion of the working population during the 10 days that it is legalised. Servants and clerks leave their employment in order to participate in this Mexican Monte Carlo, and the gambling saloons drive a continuous and apparently most prosperous trade. There is, however, no great amount of cheating, although numerous heated disputes lead to encounters which not infrequently end either in the hospital or the police-station.

The city of Aguascalientes is finely built, and it is kept in a thoroughly sanitary condition. It is also well-policed, and statistics show that in spite of a very large labouring population (the shops of the Central Railway Company, employing some 4,000 men, as well as a large smelter employing another 1,500 men, being situated here), very little disorder is found to exist.

The State of Aguascalientes, owing to its geographical position, is an important commercial centre, and it exports large quantities of corn and beans, especially to the City of Mexico, while its commercial relations with the other

States, including the mining districts of Zacatécas, Pachuca, Guanajuato and San Luis Potosi, are of very considerable importance.

The total value of the trade of the State is estimated at about $15,000,000 Mex. (£1,500,000) per annum, of which $5,000,000 represent imports, $6,000,000 exports, and $4,000,000 local trade. In point of communication the State is fortunately placed; the Mexican Central crosses it in two different directions, from south to north and from south to north-east. Aguascalientes is one of the most valuable districts for the Central Railway, which, besides the heavy freights which it carries, possesses an extensive series of "shops," to which further reference is made in the chapter which I devote to this great railway system. Although no late census returns are available, I understand that the population of the State is now between 102,000 and 103,000. The chief town, Aguascalientes, accounts for nearly 57,000 of this total. It is one of the most interesting cities in Mexico, and is invariably included in the itinerary of visitors to the Republic.

A one-time extensive local trade was carried on in the beautiful "drawn-work," for which, indeed, Aguascalientes has long been famous. The finest specimens of this product —the drawing of delicate linen with intricate and artistic designs—are to be found here, many hundreds of women and girls being continually employed either in making or selling the embroideries. The work is very popular with visitors to Mexico, American women especially purchasing it in large quantities. At the present time, however, it would seem as if the industry were destined to suffer considerable diminution, if not complete extinction. It is becoming more and more difficult to secure really good workwomen. The commercial value of the product has fallen, and the workers find the amount of time expended unremunerative for the best-class pieces. Perhaps of all manufactured products drawn-work offers the lowest wages to the operators. An expert in the business has declared that latter-day conditions induce women, who formerly passed many days and months patiently evolving and working-out a new and beautiful pattern, to find other and more paying occupations. Women now find remunerative

AGUASCALIENTES.—Government Palace, City of Aguascalientes.

STATE OF TAMAULIPAS. A STREET IN TAMPICO.

See p. 131.]

employment in so many directions that plying the needle or the embroidery-frame has become almost obsolete.

As an instance of the labour and care which can be, and formerly frequently were, expended upon a single piece of drawn-work, I may mention one particularly-beautiful dress made entirely of this class of embroidery, the artist being a Señora E. Leon, of Aguascalientes, who devoted nine years to its completion. She was assisted by three hundred expert needlewomen, all of whom were paid liberally. Originally this exquisite costume was intended to be shown at a Paris Exhibition, in the Mexican Exhibit; but it was not finished in time. Then it was proposed to send it to the St. Louis Exposition of 1904; but again it failed to find completion soon enough. The dress consists of a full skirt and long train, short Zouave jacket and bertha. The material is of the finest sheet-linen, the thread used having been directly imported from Paris, and bore the number "300." Señora Leon herself designed the pattern, which is a marvel of intricacy and delicacy. There are no seams in the whole costume which are visible, the "drawing" being carried out in wheels, the effect being to give the original fabric a filmy, web-like appearance, suggestive of the most costly Venetian or Valenciennes lace. The value of this dress is $40,000 (say £4,000), and affords an almost unique specimen of woman's skill and patience.

Importers of drawn-work purchased in Mexico have continually to struggle with United States Custom House officers, who cannot, apparently, differentiate between "drawn-work" and "lace." Unquestionably a difference does exist, but to the uninitiated in art-work the same is not clearly defined. In the United States the duty imposed upon linen or lace is 60 per cent. under paragraph 339 of the Tariff; under paragraph 346 of the same Tariff the duty is but 35 per cent. on imitation or part-imitation lace. The question is—Under which of these headings does drawn-work rightly belong? It is contended that it was never meant to make any distinction between articles having drawn threads and articles in part-imitation of lace, and in fact the words "drawn-work" do not occur in any part of the Tariff. The scope of the statute is best expressed in its own words as follows: "Handkerchiefs,

napkins, wearing apparel, and other articles, made wholly or in part of lace or in imitation of lace . . . . wearing apparel, handkerchiefs, and other articles or fabrics embroidered by hand or machinery, whether with a letter, monogram or otherwise . . . . all of the foregoing composed wholly or in chief value of flax, cotton, or other vegetable fibre . . . . 60 per cent. ad valorem." I believe that the vexed question has to some extent been satisfactorily settled after direct appeal to the U.S. Government.

The City of Aguascalientes owns many fine public buildings, such, for instance, as the Governor's Palace, the Casa Municipal, the Téatro Morélos, and the Exposition and Scientific Institute. Here also may be seen some very fine specimens of classic architecture, some churches containing many valuable pictures, notably the Adoration of the Magi, by José de Alzibar, painted in 1775, and another canvas by the same artist is in the church of San Juan de Dios. In every church in Mexico is to be seen the set of 14 paintings representing the Stations of the Cross, but the finest of all these is at the church of the Encino in Aguascalientes, painted by the same artist, Andréas Lopez.

There are two lines of tramways, wholly operated by electricity, which traverse the city from end to end, while the telegraph, telephone and post-office arrangements are remarkably well conducted, an observation which applies with equal truth to the schools, hospitals, public libraries and Chamber of Commerce.

The great improvements which have been successfully introduced into the City of Aguascalientes during the past few years are due to the progressive and intelligent policy of the Governor, Señor Don Alejandro Vasquez del Mercado, who has allowed no opportunity to pass unheeded. Special attention has been given by his excellency to the cause of education, and in no State of the Republic can better-regulated or better-attended schools be found than in Aguascalientes. Liberal grants are made by the State Government in this direction, and the inhabitants freely avail themselves of this opportunity of improvement. I understand that the school attendances throughout the State will compare with those of any other in the Republic in proportion to the population.

CHAPTER XXXVII

STATE OF CAMPECHE: Scenic attractions—Dangerous climate—Sparse population—Timber resources—Exports and imports—Lack of railways. STATE OF CHIAPAS: Mountains and scenic features—Irrigated valleys—Industries—Tobacco and other products—Coffee—Sugar—Oil—Cocoa—Indigo—Copper—Lack of railways—Wonderful ruins of Palenque.

SHAKESPEARE has said, and said very truly, that diseased Nature oftentimes breaks forth in strange eruptions. Assuredly she has done so in the State of Campeche, which, fair enough to the eye, is really one of the most unwholesome States in the Republic of Mexico.

It has beautiful shores, bathed by the smiling wavelets of the blue Gulf waters, but they cover many a dangerous shoal and cruel reef; it has cool and shady forests, stretching away for hundreds of miles, but therein lurk deadly fevers and noisome insects; it has luxuriant savannahs, verdant lagoons and many beautiful lakes, but in them all are the haunts of malaria, poisonous reptiles and deathly vapours.

What Nature has so generously bestowed on the one hand—prodigious growths and riotous vegetation—she has enviously withheld on the other—the possibility of living healthily, happily and humanly. With this huge territory of over 46,000 square kilometres, there is barely one-third of the State that is possible for white men to inhabit. The entire population, under 87,000, mostly Indians, crowd together into the section known as the Partido de Carmen, which is well-irrigated by several streams, natural lakes and lagoons, surrounding and emptying themselves into the larger Lake of Términos.

The rich forests, filled with valuable woods, stretch right down to the water's edge; but it is certain disease, and

frequently death, to penetrate far beyond their borders, the Indian alone finding safety within their dark and fever-laden depths. Nevertheless, these forests—containing dye woods, hard woods, palms, mahogany, etc.—form the principal export of the State, being cut and floated down the numerous natural waterways to the coast, and there collected for the various markets which are distributed throughout the Republic.

No doubt the State of Campeche contains many good and promising mines—at least, such are suspected to exist—but the climate is so trying and the labour available so poor and unreliable that the industry has been almost untouched. So far as exploitation has proceeded, copper of a good quality has been found, as well as lead, silver and magistral, a species of copper pyrites, formerly of value to the "patio process," but now of small account, since the same process has been almost discontinued in favour of the cyanide treatment of the ores.

The one really important mineral worked in Campeche is salt, of which some valuable deposits have been found. These deposits extend from the port of Campeche to the port of Celestum, in the neighbouring State of Yucatán, and yield something like 40,000 to 50,000 "fanegas"* annually, all of which is exported to the other Mexican States of Tabasco, Veracruz, Tamaulipas, Hidalgo, Puébla and Oaxaca.

The State's greatest export, namely that of woods, finds a ready market both in the United States and Great Britain; but rubber, of a poor nature, hair, cocoanuts, chicle, henequén, prepared hides and skins, and a few other articles also form part of the State's commerce. The total annual value may be put at $2,500,000 (Mex.). Practically, all articles of daily consumption—except cereals (and sometimes even these when the rains fail to materialise)—have to be imported, including fabrics (such as cotton, silk and woollen goods), groceries, hardware, drugs and chemicals, paper, books, machinery, tools, agricultural implements, oxen, ammunition, cattle, wines, liquors, etc. The import trade of the State is valued at $5,000,000 (Mex.) annually.

The State of Campeche has but very little railway com-

* 1 carga = 2 fanegas = 181,629,775 litres, or 5,154,357 bushels.

munication, and the spirit of foreign enterprise, which is doing and has done so much for other portions of the Republic, seems to be halting here. Between the capital (Campeche) and Mérida, the capital of Yucatán, there is a line of 173 kilometres (say 108 miles), belonging to the United Railways of Yucatán, Limited; while between Campeche and Leorma a street railway, with a track of 7 kilometres, drags out a somewhat miserable existence. Between Ivonchac and Yohaltún, in the Partido of Champotón, a line, measuring some 40 kilometres, enjoys a fair trade; in addition to which there are one or two small lines connecting-up the Cities of Campeche and Carmen with their neighbourhoods.

The principal means of communication in the State of Campeche are carried on by water, both the rivers, lakes and coast being brought into requisition. The Candelaria, although a fine-looking river, with a length of 419 kilometres, is another of Nature's disappointments, for, being shallow and deep at odd distances—measuring as much as 60 feet in some parts and but 8 in others—it is practically useless for navigation. The Champotón, 95 kilometres in length, can be navigated by small craft only, while the Palizada, a very long and broad river, can accommodate craft from 15 to 20 tons burden, having throughout almost its entire length a mean depth of over 60 feet. The Champóton is a similar kind of water-way, but very tortuous, and consequently rather dangerous.

Agriculture, which could be very considerably improved and much extended, is but indifferently pursued. Rice, cane, cotton and tobacco and many other things would flourish here amazingly, the climate being particularly well adapted to all of these; but apparently the people find greater profit in the vast timber resources of the State, and wood-felling forms the principal occupation of the majority. Logwood especially is cut, and fetches very fair prices.

The population of the State, as already mentioned, according to the last census, is approximately 87,000; and the figures given do not vary much from census to census, the proportion of foreigners likewise remaining very small, and practically stationary.

From practically every point of view but one—namely, that of railway communication — the State of Chiapas may be classed as one of the most favoured parts of the Republic. In spite of it being located in the tropics, the territory being mainly in the torrid zone, it possesses some of the finest rivers, the most lofty mountains, a variety of climates, the most fertile soil and about the most orderly inhabitants to be found in Mexico. Unfortunately little foreign enterprise has, as yet, found its way into Chiapas, but it is surely only a question of time, and a very short time at that, before this State becomes better known, and consequently more developed, than is the case at present. Señor Ramon Rabasa, the Governor of Chiapas, has ever displayed the keenest and most intelligent interest in the advance of this State, and under his enlightened and encouraging policy foreign capital should be beneficially attracted. In the course of conversation with his excellency, I received the assurance that every possible protection for foreign investments may be replied upon.

Here may be met the continuation of the famous Andes of South and Central America, known locally as the Sierra Madre Ranges. The volcano of Tocaná, with its snowy head rising some 4,000 metres into the heavens, towers aloft, its slopes cultivated carefully and securely for hundreds of acres, rich crops of wheat, potatoes and other cold-zone products being raised here. Down in the numerous valleys, of which there are several incomparably beautiful from a scenic point of view, are grown almost every kind of tropical produce—cocoa, coffee, tobacco, sugar-cane and indigo.

The valleys of Custepeques, Jiguipilas, Zintalapa and Chiapas are abundantly irrigated by different rivers, some of which are navigable for their entire course, such as the Chiapa, 554 kilometres long, and the Usumacinta, 550 kilometres in length, with a large number of tributaries, all of which are possessed of strong currents. I do not know of any part of Mexico more favoured than the State of Chiapas in regard to rivers and streams of practical utility.

The valley of San Cristobal is in a different and much colder region, severe frosts sometimes being experienced here. It is almost entirely enclosed by high mountains, and forms a very healthy part of the country in which to live. Here are

to be found numerous indications of rich mineral deposits, such as iron, lead, talcum and coal, while the firm of S. Pearson and Son, Limited, of London, have established a branch of their house at San Cristobal for their widespread oil-interests, of which much more is destined to be known ere long.

A considerable and growing trade is established between Chiapas and the rest of the Republic, which only needs the advent of more railway communication to render it of first importance. To the United States of America, to Guatemala, its immediate neighbour, and to Europe go the products of this thriving and liberally-endowed State. Guatemala takes a great amount of cattle of every description, the rich pasture lands producing some of the finest specimens of full-blooded oxen, goats and hogs to be found within the Republic. The value of the cattle trade of Chiapas may be put at $2,500,000 (Mex.), but, as I have explained, with the advent of more railway communication there is practically no limit to what this might attain. Its western neighbour, Oaxaca, itself a very fair and prosperous State, possessed of some fertile and fruitful lands difficult to excel for richness, takes great quantities of coffee, tobacco and cocoa; while the Capital City of Mexico drives a flourishing trade in cacão, cheese (a sweet and delicious kind, fully equal to the best Edam or Holland brands), tobacco and woods. These latter, as well as indigo and coffee, find their way to the United States, *viâ* San Francisco, and to Europe, *viâ* Veracruz.

On the other hand, Chiapas is a good customer for the products of other States and other countries, taking quantities of cotton, woollen, silk and linen goods, wines, liqueurs, arms, ammunition, petroleum, canned goods, machinery, agricultural implements, dyes, books, printing materials, and medicinal products. All these imports show a marked increase for the year 1906-1907, so far as I have been enabled to obtain the returns, the figures from the principal customs-houses, located at Soconusco and Tonalá, indicating a gradual and consistent increase in these importations.

The State's industries, besides that of agriculture, are as yet imperfectly developed, but, so far as I have studied them, I may say that they embrace the manufacture of rum from

the sugar-cane, molasses, refined sugar, hats, mats, cotton and woollen fabrics (upon a limited scale), cigars of a rather poor quality but very popular with the natives, soaps, candles, tanned hides and large quantities of tobacco, coffee, cocoa and indigo.

The sugar grown in Chiapas will compare for quality with any found in South or Central America, or even in the United States. Upon one plantation, 80 tons of cane to the acre have been quite ordinary productions, the yield being 200 lbs. of pure sugar, leaving the bye-products of aguardiente and molasses in sufficient quantity to pay all the expenses of extraction. Unfortunately there have been no mills for the treatment of sugar between the Isthmus of Tehuantepec and the Guatemalan border; latterly, however, some Chicago capitalists have determined to erect a large mill which will accept certain work, the locality chosen being that of Tonalá.

Near by a German has been experimenting during the past two years with the cultivation of navel oranges, and with some good results. They have proved easy of growth, considerably larger than the Californian or West Indian variety, and exceptionally sweet and juicy.

In regard to the coffee produced in the State of Chiapas, I have met experts who declare this to be of a quality as fine and as carefully prepared as any to be found in the Republic, and superior in many respects to that of Brazil. Moreover, the berry flourishes here as it is seldom found to grow elsewhere. Romero, the author of "Coffee and Rubber Culture in Mexico," published in 1898, estimates that a coffee plantation in the district of Soconusco, State of Chiapas, will yield in its fifth year, and every year thereafter, a profit of 135·49 per cent. upon the capital invested during the first four years. Cacao, he declares, yields four crops a year, the principal one being gathered in May, and the remaining three in the months of August, November, and February respectively. The same profitable plant may be found growing wild and in great luxuriance on the slopes of the mountains, and many connoisseurs of the product declare that it is to be found in its finest state in Chiapas.

This year the harvests have been especially abundant throughout the whole State, the district of Soconusco alone

producing coffee to the amount of 150,000 quintales, representing a monetary value of $3,000,000 (Mex.). The corn crop is equally satisfactory, while the cacao crop is greatly in excess of the usual yield. During the past few months, several new and promising henequén plantations have been laid out, especially in the district of Cintalapa; other increases in the area planted include cacao and corn.

No less enthusiastic are experts in regard to the quality of the tobacco grown here. The districts of Mapaztepel and Simojovel produce a leaf fully equal to that from Tuxtla (in the State of Veracruz), and Huimanguillo (in the State of Tabasco). A leading firm of tobacco manufacturers of Mexico City assured me that they buy as much Chiapas leaf as they can find, but they cannot procure anything like as much of it as they could make use of.

The indigo grown in this State is very highly valued, and comes principally from the district of Tonalá. The vegetable dyestuff, which yields such a beautiful dark blue colour, is formed from the leaves and the stem of the plant—the genus *indigojera*—and nothing like it can be found outside Mexico and the East and West Indies. The common woad, found in Europe, cannot be classed in the same category as the Mexican plant, which is cultivated here in the highest form of perfection.

Among other plants found, but only indifferently cultivated, if at all, are rubber of a very common kind (also found wild throughout the State), many fibrous and leguminous growths and wondrous fruits—in fact all kinds, especially the mulberry and the vine. Chiapas is a veritable land of plenty, a heritor, indeed, of Amalthea's horn.

Last June a new concern—the Anglo-Mexican Oil Fields—was formed with a capital of £250,000 to work petroleum deposits in this State.

Copper deposits have been successfully located in this State, and at a place not far from the position selected by the new Pan-American Railroad. The mineral is said to be of a pure and excellent grade, equal to that found in Michigan, U.S.A. Much interest is being displayed in prosecuting development, one of the largest copper-mining Companies in America having established a complete exploration party, consisting of some

twenty to thirty expert prospectors, with assay offices and an entire outfit. In a very short while the results of this systematic investigation will be known; the headquarters of the explorers are at Esquintla. Other mineral wealth, which should one day be developed, consists of iron, lead, talcum, coal, alphalt, sulphur, sulphate of sodium, gypsum, alabaster, nitrate of soda, salt, yellow amber, etc., etc.

While the State possesses as yet no railways (excepting the but partially completed Pan-American), there are at present several important concessions granted for their construction, among these being a line from San Juan Bautista to El Paso de Tamulté; another from the Port of San Benito to Tapachula, and a third from the Port of Tonalá to Frontéra (in the State of Tabasco), passing through Tuxtla Gutierrez, the capital of Chiapas, which is possessed of a busy and prosperous population of some 23,000 people, a delightful climate and a situation of 530 metres above sea-level. How soon these various enterprises will mature, or whether they will mature at all, I cannot say. At present they are languishing for lack of capital, the construction entailing a considerable preliminary outlay, which the State itself could do but little to supplement.

One most important factor in the many attractions of Chiapas must inevitably be the marvellous—perhaps the most marvellous of all—ruins to be found at Palenque. Every other prehistoric city in Mexico, and indeed in the world, must yield pride of place to this, a verdict pronounced and endorsed by every archæologist and antiquarian who has ever seen the great ruins of the universe. Under a separate heading (see Chapter XXVIII.) I deal, very inadequately and very feebly, alas! I know too well, with these truly fascinating and unique relics of a past and completely forgotten generation—a generation which was ancient and mystic even when the Toltecs came into possession of the land, of which they were dispossessed by the Aztecs, and who, again, were despoiled by the all-conquering Spaniards. These ancient ruins—

> "We never tread, but we set
> Our foot upon some reverend history."

Photo Winfield Scott.

CHIHUAHUA.—The Cathedral (San Francisco) City of Chihuahua.

CHAPTER XXXVIII

STATE OF CHIHUAHUA: Population—Physical conditions—Agriculture and stock-breeding—Wheat-growing—Former Governor Creel and the Indians—A risky experiment—City of Chihuahua—Irrigation—Railway accommodation—Railway extension—Kansas City, Mexico and Orient Railway. STATE OF COLIMA: Former importance—Population—Agricultural resources—Some coffee estates—Waterways—Central railway extensions—Trade and industry—Progressive government—Improvement in financial conditions.

IF the population of the State of Chihuahua were but proportionate to its vast size, it would rank as the most important State in the Republic of Mexico. It is almost that as it is; but the great drawback which must result from an area of 233,094 square kilometres having but a population of 328,000 persons is apparent. Moreover, out of these 328,000 people, nearly 9,000 are Indians, belonging principally to the half-civilised Tarahumara race. With so meagre a populace, the great resources of the State have been very indifferently developed, and this in spite of the large amount of foreign capital—mainly American—which has been invested.

The average of the population works out at only 1·15 inhabitants to the square kilometre, which may be compared, as an instance of its inadequacy, to Philadelphia, but one-third of the area, with a population of 1,408,000, or, 140·1 inhabitants to the square mile.

Chihuahua cannot be termed a scenically-beautiful State. It is practically an enormous, undulating tableland, with an elevation ranging from 3,500 to 7,000 feet, and a number of unimposing mountain ranges, the highest peak of which does not exceed 2,800 feet. On the whole, the climate is pleasant, but during the summer a somewhat intense heat prevails through the midday hours, and during the winter sharp

frosts are met with. The summer season is very rainy, and sometimes the fall continues uninterruptedly for 5 or 6 days. Dust-storms at other times are frequent, and the town of Chihuahua itself, during one of these periodical visitations, is a particularly unpleasant place to be in. No amount of water thrown on the roads seems to have any effect, drying up as it does almost as soon as it touches the ground.

Agriculture, once the great resource of Chihuahua, has now given place to Mining, which has assumed the prominent and most lucrative position in the State's industries.

There is very little that will not grow in Chihuahua; but labour is so scarce and so poor that the produce of the fields lies on occasions rotting for want of attention. Here are produced, in varying degrees of excellence, many kinds of cereals —corn, wheat, rye, oats, maize and barley; while in regard to vegetables, potatoes, beans and such-like are to be found moderately cheap and of fair quality.

The wheat crop of 1906 was practically double that of 1905, and that of the present year, I understand, from the latest advices received from Mexico, are likely to show an even greater advance. The annual return stands at something like 400,000 hectolitres, or, say, 1,500,000 bushels. The crops, due to beneficial rains, clearly demonstrate what the State might accomplish with systematic irrigation and a constant labour-supply. That agriculture, however, ranks, as I have said, second to the mining interests is proved by the figures given by the Government for last year, which stand thus:—Values from mining—$16,000,000 (£1,600,000); from agriculture—$4,000,000 (£400,000). The mining returns for this year (1907) will be still further augmented by the recent establishment of smelters at Santa Eulalia, Jimenez, and Concheno Guaynopila in Parral.

Farming is carried on somewhat primitively, the inhabitants, as a whole, being unreceptive and difficult to teach new ideas. There is probably too much of the Indian blood still to combat, and the fact that the peon class has hitherto been somewhat severely tried by a too-progressive régime has not tended to bring labour "into line" as readily as might have been anticipated.

"Zeal is very blind, or badly regulated when it encroaches

upon the rights of others," we are told by Pasquier Quesnel; not that the interest displayed in connection with the Chihuahua Indians is to be termed any encroachment upon their rights; but the determination of the State Government (under Señor Don Enrique Creel, now Mexican Ambassador to the United States of America) to tear them suddenly from their traditional surroundings and to make "intelligent citizens" of them has been rather too precipitate and ill-considered to prove entirely successful. No doubt much credit is due to the ex-Governor of the State, who, with money from his own pocket, established five or six schools for the especial training of these Tarahumara Indians. That they are not quite ripe for the experiment is to be regretted, but hardly causes much surprise. It is now only for the first time in their history that any attempt has been made to civilise and educate them, and that under somewhat heroic circumstances.

A somewhat unusual and rather Utopian scheme was last year inaugurated in Chihuahua, also at the instigation of the late Governor, one which had for its object the permanent abode of the working classes by offering them certain inducements to purchase land and build houses thereon. Apart from the fact that if a man desires to quit a State and settle elsewhere the tendering of land at a special cost and upon easy terms of payment is scarcely likely to cause him to change his mind, it is questionable whether this policy is altogether to be commended upon other grounds. The terms offered by ex-Governor Creel of Chihuahua are a reduction of 50 per cent. on the original price of the land, payment extended over a number of years and freedom from house taxes for a lengthy period. The occupier of the land has to build a home for himself, and this, of course, encourages thrift and stability; but it looks rather like offering a bribe "to be good," especially as a further inducement is offered in the shape of a free building lot, measuring 25×25 metres, with the provision that it shall not be sold without the consent of the State Government, "if no criminal charge has been brought against the recipient for five years." However, one has to look at the intention of the Governor, which is undoubtedly a lofty and a generous one. It would be unwise, perhaps, to expect a general following of his philanthropic policy among the other States, the

majority of which manage to keep their people in order and fairly well-content without resort to any such expedients as these.

In point of number and quality of cattle-raising, the State of Chihuahua stands second in the list of States so far as actual value goes, the only superior State being that of Jalisco. The vast, flat ranges to be found in Chihuahua, and the temperate climate, combined with a good average rainfall, make it almost an ideal country for cattle, and here are fattened the thousands of oxen which serve to feed the greater part of the Mexican Republic. Many head also find their way to the United States, which are located just across the border, the cattle being received through the ports of Eagle Pass, Nogales, El Paso and San Diego. Some of the haciendas in Chihuahua, some of which cover many hundred square miles of territory, dispose of as much as 20,000 head annually; while horses, asses, mules and goats are also bred in great numbers. There is one hacienda, belonging to a prominent and colossally-rich citizen, which brands between 30,000 and 40,000 calves yearly, a result which may be compared to anything of a similar nature to be found in the premier cattle-raising country of the world—Argentina. I refer to Señor Terrésas, formerly Governor of the State of Chihuahua, and father-in-law of ex-Governor Enrique C. Creel. Some of the finest head I have seen are on the land owned by the members of the large Mormon Colony which has long been settled in Chihuahua, the great care bestowed upon breeding proving an important factor in the success achieved.

Irrigation is receiving some attention at the hands of capitalists in Chihuahua, there having been three enterprises of some magnitude inaugurated last year, one dealing with the Conchos River, above Santa Rosalia, in connection with which a large hydro-electric plant is contemplated; a second upon the Mormon Colony of "Juarez," and the third upon the lands of the Corralitos Land and Cattle Co. With the fine rains which fall in the State, and which can be easily preserved in dams, and the several rivers already referred to, irrigation upon an extensive scale ought not to languish for want of means or lack of enterprise. The Western United States afford many excellent examples of this kind of enter-

prise, and should serve as an encouragement to the large land-owners and haciendados of Northern Mexico.

Further particulars of Chihuahua live-stock will be found under the heading of "Agriculture" in Chapter LIV.

Railway communication, already very considerable and annually becoming more extended, has materially assisted the State in attaining its present prosperous condition, while its immediate proximity to the flourishing State of Texas (which formerly belonged to and formed part of Mexico) is an undoubted point to be considered.

The main line of the Mexican Central Railway runs through the State almost from end to end, a distance of about 850 kilometres. There is a branch line which traverses the important mining district of Parral, where some of the most celebrated producing-mines are located; while the Mexican Northern Railway has a track from Escalon to Sierra Mojada in the State of Coahuila, a distance of 125 kilometres (say 78 miles), linking up that region, singularly rich in low-grade ores, with the Mexican Central System.

Progress is being made with the new line constructed by the Rio Grande, Sierra Madre and Pacific Railway; while extensions of the Chihuahua and Pacific Railway, running at present from Chihuahua to Temosachic (a distance of 270 kilometres, or, say, 169 miles), are being persevered with. Perhaps the next most important line will be the Kansas City, Mexican and Orient Railway, a new transcontinental system which passes diagonally across the State of Chihuahua, covering a distance of several hundred miles of its territory, and serving to open up an immense tract of hitherto untouched country, the greater portion of which is admirably adapted to cattle-raising and a goodly portion proved to be rich in minerals, but which up till now have been unprofitable to work owing to the great difficulty in transportation.

The national roads are fairly good. The ground being comparatively level and the soil somewhat gritty, the rains do not effect the highways as seriously as in some of the other States—notably Colima, Jalisco and Guerréro. Round about the City of Chihuahua the wagon-roads are uniformly good, and are well kept by the State authorities.

Owing to its remoteness, being tucked away in the extreme western corner of the Republic, and the lack of railway communication hitherto, Colima, the smallest but one of the States of the Union, has been much neglected. The time is fast approaching, however, when distance will have but little effect upon this State's future prosperity, since in a few months' time a regular service of trains over the Central Railway System will have linked-up Colima with the rest of the Republic, and it will be practically born anew. For close upon 400 years the little State has lived within itself and for itself, although, at one time, it ranked as an important place enough on account of its fine seaport at Manzanillo.

It was in the year 1557 that Don Gonzalo de Sandobál, in the name of King Philip II. of Spain, founded Santiago de los Caballeros Colima, so that the town itself is one of the oldest in the country.

The population of the State of Colima is under 66,000, and its whole area but 6,114 square kilometres. Of this, the mainland occupies 5,928 square kilometres, and the islands of Revillagigedo 186 square kilometres. Some beautiful country is to be found within the limits of the State, and which, for grandeur and impressiveness, cannot be excelled anywhere in the world. In fact, there is barely a square acre which does not present some feature of interest for the geologist, the botanist, or the artist. And, withal, scarcely a dozen of these go near the paradise which is awaiting their good pleasure and enlightenment.

The climate of the State is not all that can be desired, being, indeed, one of those drawbacks which scenically-beautiful countries usually have to put up with. In the northern parts of the State, where the snow-covered peaks of Colima volcano temper the atmosphere to a delightful temperature during the nights, it is pleasant enough; but the southern part suffers from intense heat, a good deal of dust at times, and torrential rains, which, as was the case last year, cause a great deal of damage to the crops, the railway and the houses. Fever used to be very prevalent on the coast, but little exists now, the authorities having very materially reduced the risks of contagion, and maintaining a constant vigilance against an outbreak.

The State is possessed of several imposing rivers, two of which are extremely troublesome. During the rainy season the Armeria and the Coahuayana have frequently come down from 20 to 30 feet high, and last year proved an exciting and trying one for those who lived, or had any property, near its banks. The entire railway between Colima and Manzanillo was damaged, every bridge being swept away, while several people and a large number of cattle were drowned. So far as the railway is concerned the event is little likely to recur, since the new line, when completed, will follow a different route, removed entirely from the river's influence.

The Armeria River traverses the State from North to South, emptying into the Pacific Ocean through the mouth of the Pascuales, after a course of some 300 kilometres, of which barely 20 are navigable from the mouth. The Coahuayana River forms the natural boundary between Colima and Michoacán, and is also almost entirely unnavigable. There are two large lakes, Cuyutlán and Alcuzagüe, which, being without any natural outlets, occasion a great deal of trouble during the dry season, when, being very low, the stagnant water causes the fish to die and putrify, with the result that some pestilential odours are wafted across to the town of Manzanillo, and cause some sickness. This has for some time been engaging the Government's attention, and in all probability the nuisance will have been completely overcome within a very short time (see also Chapter XXXV., on Manzanillo Harbour).

Colima is essentially an agricultural State, and practically its whole prosperity depends upon that industry and its salt deposits. The fertility of the soil is such as to enable two or three crops of many products being gleaned in a single year, no doubt due to the splendid natural irrigation which the State enjoys. In some things, such for instance as coffee, Colima holds premier rank, its cocoa, tobacco, rice, cotton, indigo and sugar also ranking as among the best of their kind. The question of population—especially the lack of it—again plays a prominent part here; and if immigrants could but be induced to come to Colima and till its fruitful soil in the more healthful portions, there is no limit to what could be produced therefrom.

Among the principal haciendas are those of the Governor of the State (Señor Lic. E. O. de la Madrid), named Guaracha, Llano Grande, Rosario and Santa Maria, all of which produce beans, maize, wheat and rice; and those of Mr. Arnold Vogel, the German Consul, named Rincon del Barrio, Santa Cruz and San Antonio; these with the haciendas of Miraflores, La Capacha, Chiapa, Queséria and Nogueras, form the principal sugar-producers of the State.

The haciendas of Bella Vista, La Huerta, La Albarrodite, La Magdalena, Paso del Rio, Alcaracez, San Joaquin, Los Colomos, Pastores and El Coloma are only a little less important. These properties produce two crops annually, the principal ingathering being in the months of January and February. The annual output averages 300,000 hectolitres of maize; 1,500,000 kilograms of rice, and 500,000 hectolitres of beans. The cane plantations yield 1,200,000 kilograms of sugar, and 500,000 litres of alcohol. The finest coffee in the State, which is famous for the quality of the berry it produces, comes from the Hacienda de San Antonio, the property of Mr. Arnold Vogel, as stated, and this has taken several foreign Exhibition prizes. The extensive cocoa-nut plantations of the Hacienda de Miraflores materially contribute to the wealth of the State, as do many other small but flourishing undertakings of a similar nature.

Fruits of every description are grown in Colima, and are to be obtained almost all the year round at very reasonable prices. Living generally is cheap, house-rent being very moderate and the taxation by the State very light. How long these advantages will endure when once the railway comes along to effect its usual far-reaching change, it would be dangerous to prophesy. At present anyone with an income of £100 a year is deemed in Colima to be well off.

The trade of the State is conducted principally with its immediate neighbours Jalisco and Michoacán, the towns of Guadalajara, Mazatlán and the northern Mexican ports participating. To this end thousands of donkeys and mules are employed, they being the sole means of transport, until the railway comes through from Tuxpan to replace them. Up till now every pound-weight of merchandise from the interior has come to Colima in this way, and the displacement of so

CHIHUAHUA.—The City of Chihuahua, founded in 1539 by Diego de Ybarra.

many muleteers will no doubt be acutely felt in the neighbourhood so soon as the iron-horse is thoroughly installed. I am told that something like $2,000,000 of merchandise and machinery are carried annually on the backs of mules and asses.

No small credit is due to the present Governor of the State of Colima, Señor Lic. E. O. de la Madrid, for the manner in which he has succeeded in reorganising the finances of the State and bringing up the revenue from practically nothing to a substantial figure, and this without in any way introducing exacting or unfair legislation. Without increasing the number of contributors, a complete revaluation of both city and urban and suburban property has been made, both industrial and commercial, it having formerly been taxed either too much or too little, and very unequally. The new valuation, without entailing any hardships or bringing forth any complaints, has resulted in a substantially increased revenue for the State. The latest return of the valuations made gives $7,375,611 (say, £737,561) instead of $4,782,606 (£478,260), and the estimated cost of this revaluation will not exceed $132,000 (£13,200).

The Governor is very much respected throughout the State. He is, although comparatively young, a thorough man of the world, shrewd, kindly and just. He has frequently acted both as judge and jury for litigants, and without fee or reward, holding the scales of justice evenly between both parties and enjoying the esteem and confidence of all. He has assuredly well earned the gratitude of the inhabitants, who were not always as fortunate in their rulers as they are at the present time.

CHAPTER XXXIX

State of Coahuila: The most prosperous and progressive in the Union—Capital invested—Mineral richness—Agricultural resources—Cattle breeding—Some notable ranches—Cotton-culture—Some enormous haciendas—The Purcell interests—Plantations and fruit orchards—General prosperity—Foreign capital—Some notable firms—City of Saltillo—Public and private buildings—Factories and wages—Railways—Unique transportation facilities—Tramways—Government and education—Smelter and Mazapil Copper Co.—Torreon—Importance of local industries—The Smelter—Building progress.

One of the three largest States in the Republic—Chihuahua and Sonora being the other two—Coahuila is more richly endowed than either. In many respects, indeed, it may be regarded as the premier State of the Union, possessing as it does a greater stretch of fertile country, more certain—by which I mean absolutely proved—mineral resources, and a more bracing climate than any other. Like the State of Chihuahua, Coahuila adjoins the United States of America, from which a great amount of capital has already been received, with the certainty of a great deal more to follow. The question of population, as in so many other cases in Mexico, is unfortunately a serious one, the number of inhabitants of the entire State, which has an area of 168,000 kilometres, being only about 332,000. In the year 1900, the census being taken on October 28, the population was officially placed at 296,975; so that the increase of 35,025 in six years may be considered as extremely satisfactory. Day by day the number is augmenting, the State generally succeeding in attracting more immigration, and suffering from less emigration, than any other in the Republic. I believe that there are many surprises ahead in regard to Coahuila, or, to give it its full title, "Coahuila de Zaragoza," which has a

remarkably promising future, both from an agricultural, an industrial and a mineral aspect.

Independently of the amount of capital, principally foreign, represented in the railways, mines, and other property, exempt from taxation, properties valued at over $50,000,000 (£5,000,000) are paying taxes to-day in Coahuila, and may be classed as follows:

Capital in City	$6,229,270
Capital in towns	9,719,942
Manufacturing	8,000,000
Commercial	9,000,000
Mining	12,240,545
Minor Industries	5,168,174
Total	$50,357,931

Coahuila has, typographically, a very curious shape, strongly resembling a human face, with a very long nasal organ, the head, neck and bust being very clearly defined. The climate, as I have said, is one of the best to be found in Mexico, the temperature being much about that of the Southern States of America, but never quite so cold nor as hot. Warm clothing is very necessary in the winter months, and fires are found in many of the houses.

It is only within the last few years that the great mineral richness of Coahuila has been fully realised. Once the fact was established, however, that the State was possessed of immense silver deposits and coalfields, as well as copper, iron and gold, development upon a systematic and conservative scale was commenced, fostered and encouraged in a sensible and continuous manner by the Government, which has steadfastly set its face against anything approaching a sensational "boom," preferring to see the State go ahead slowly but surely, and affording investors abundant opportunities of testing their holdings before embarking heavily upon other enterprises. Such a wise policy is bound to result in a permanent and staid prosperity, and of this no lack of evidence is at present wanting. In every direction business is on the upward grade; money is plentiful; public confidence is fully assured, and ample guarantee is afforded that the development of to-day will result in enormous and progressive profits hereafter.

The value of the minerals produced by Coahuila last year amounted to over $10,000,000 (say £1,000,000). The principal

returns came from the Sierra Mojada, where over fifty mines are at present in full operation, and whose output has averaged $5,025,000 for the last two or three years. The Sierra del Carmen and the Valley of Santa Rosa have also been proved to contain an almost incredible amount of rich silver-ore, the regions in which they are located being, as a matter of fact, one enormous silver-deposit. Every foot of the hills which abound here has been "denounced,"* and is being held by strong financial groups, who are perfectly prepared to expend sufficient sums of their own capital upon proving and developing the properties beyond any possible doubt before parting with them to others. The mines of Coahuila are more fully dealt with in Chapter LXVIII.

In spite of the many natural advantages offered for the pursuit of agriculture, and notwithstanding the fact that it is followed by a considerable proportion of the inhabitants with conspicuous success, barely 15 per cent. of the State's vast area is cultivated. Nowhere will we find finer wheat than is grown here, and this almost without an effort upon the part of the husbandmen; Nature herself takes over the responsibility, and whether it be in connection with corn, wheat, cotton, beans, peas, sugar-cane, linseed, or some forty different leguminous plants, and innumerable other fruits of the earth, the very best of each obtainable can be raised. The grapes of Coahuila, for instance, are far superior to those of California, equalling in size and sweetness the finest specimens of Malaga and Granada.

For 1906, the following figures have been supplied to me by the State Government, and will subsequently appear in the annual reports:

Product.	Quantities.	Value.
Maize	2,154,287 hectol. =	$6,462,863
Beans (frijol) ...	132,245 ,,	663,225
Barley	115,350 ,,	115,350
Wheat	20,153,228 Kg.	2,085,322
Cotton	129,444,057 ,,	28,394,289
Ixtle	2,187,247 ,,	437,449
Sugar-cane	9,850,000 ,,	97,000
Grapes	2,120,000 ,,	212,000
Various other products, including vegetables, dyes, medicinal extracts, rubber, etc. ...		280,000

* "Denounced" is the local term used for pegging-out and registering title.

The wide-stretching fertile plains of the State of Coahuila offer great advantages for cattle-raising, and the industry, already large, is increasing rapidly, great intelligence being evinced for the most part in crossing the various breeds. The Swiss and Holland cattle seem to thrive the best on these ranges, the altitude apparently suiting them well. Horses, mules, asses and hogs are all bred here with great success, the prices at which they are sold sufficiently indicating their value. For many years past Coahuila cattle, although not by any means numerous compared with the products of such States as Jalisco and Chihuahua, have maintained their high reputation. The State Government has displayed an intelligent and practical interest in the breeding of cattle and horses, which is fully maintained to-day.

Among the more prominent cattle-ranches are those of Terrenes en Frontéra, Santa Anita and Esmeralda, all situated on the Texan frontier of Coahuila, between the San Roderigo and San Antonio rivers, both having permanent water and thus rendering it possible to run plenty of stock at all times. Mules are raised here from the finest Kentucky jacks and native mares, fetching good prices locally. The acreage of these properties is 200,000. Over them excellent sport is to be obtained, hounds having been found to give good results, and being employed by two Englishmen who own ranches in the neighbourhood for hunting wild-cat and coyotes, both of which are very plentiful. Lion (puma) and both black and cinnamon bear are to be found, while in regard to game there are three varieties of duck, two of quail, plover and partridge, and the white-tailed deer is also met with.

So much has the area of cotton sown in Coahuila increased during the past four years that the importation from the United States has materially decreased. The great cotton district is that known as the Laguna, which is visited with abundant rains and many intermittent days of warm sunshine, the conditions climatically being therefore excellent for the cultivation of cotton. So far, the crops have been fortunately free from boll-weevils or other insect pests; but occasional floods and inundations in the Laguna district have to be faced. Last year the crop netted about 800,000 lbs., even allowing for a loss of some $2,000,000 (£200,000) from

floods in a portion of the district. This, however, is so vast an area, and both rains and floods being purely local, a complete failure of the Laguna's crops is very improbable at any time.

The gathering-in of the cotton gives employment to a large body of men, women and children, who travel afoot with their meagre belongings strapped to their backs, in much about the same manner as those troublesome but useful wanderers—the hop-pickers of Kent.

The pickers are paid according to what they gather, and some of the more active and industrious earn as much as $2 to $3 (say 4s. to 6s.) a day. The busy period is between the commencement of October and the end of the month, but the season extends from August to December, the average wages for the whole period ranging from $1.00 (2s.) to $2.00 (4s.) *per diem*. The following haciendas, which are among the best-known properties in the State, are situated in the Laguna district. They are owned by Mr. William Purcell, and are worked by Guillermo Purcell y Cia :—San José de los Alamos, Santa Elena y Anexas, San Lorenzo, El Venado and San Marcos. These properties comprise something over 100,000 acres, of which 15,000 are under cotton cultivation, a crop almost exclusively raised in the Laguna. The Naxas River, upon which the whole of the Laguna depends for its irrigation, flows through these properties. It is an undoubted fact that Messrs. Guillermo Purcell y Cia produce the finest quality of cotton in the district. They were awarded silver medals at the Paris, Buffalo and St. Louis Exhibitions. The average price obtained for cotton in Mexico varies between 22 and 28 centavos per lb. The annual product of the Purcell haciendas varies between 5,000 and 10,000 bales, each bale weighing about 550 lbs.

The plantations and haciendas in Coahuila form a very important part of the State's wealth. The Messrs. Madero Brothers own four large and productive estates—San Carlos, San José, San Lorenzo and Seguin. Mr. Lorenzo de los Santos owns the Guadalupe and Trinidad properties, while others of note are Agua Verde and San Francisco (owned by Mr. Atilano de la Gorza); Santa Anna (Gen. J. M. Cardenas Madero); Gilita and Hornos (Mr. Claudio A. Martinez); the

Guajardo and Los Bosques (Messrs. Morales Bros.); Nuevo Leon, Compuestos and El Pilar haciendas (Sr. Praxedis Peña); La Rosa (Mr. Catarino Perez); El Vogal and La Paz (Messrs. Villar Bros.); La Florida (Messrs. Siller Bros.); and Hacienda de Maria (Mr. A. Davila Ramos).

The corn and bean crops are gathered about October. The last year's produce was exceptionally large and of excellent quality, in fact, the best realised for over ten years. Harvesting commenced earlier than usual, namely in the last week of September, and many districts in Coahuila, particularly that of Romero Rubio, yielded bumper crops. The poorer classes were among the first to derive benefit from this condition of things, and anything like distress in Coahuila last winter was unknown.

An equally satisfactory condition was found to exist in regard to the fruit orchards, of which the State possesses many hundreds, and some of great extent. The crop in 1906 was larger than ever before known, shipping of vast quantities of apples, quince and pears proceeding right through the months of September and October. The peach crop, indeed, taxed the resources of the railway companies to a straining point, hundreds of crates remaining piled up on the platforms or in the bodegas awaiting shipment. The orchard-owners, as a whole, have made a great deal of money, and every encouragement to plant out more and more land in peaches, perones and nuts is thus afforded; the local demand is considerable, while great quantities are disposed of in the southern part of the Republic.

Since the guayule plant became known as a possible rubber-producer, the industry has made good headway in Coahuila, where the plant grows luxuriantly in a wild state. There are four recently-erected rubber plants in operation, all working full time, two being at Saltillo, one at Torreon, and another at Viesca. The annual output has already attained dimensions of some value.

I have previously observed that a great deal of foreign capital has found its way into Coahuila, and with the best possible results. To a great extent the commerce of the State is in the hands of Americans, Germans, Spaniards and Frenchmen. Two or three British firms are to be found,

prominent among whom is the banking-house of Guillermo Purcell y Cia, a limited liability company, the shares of which are held entirely and exclusively by the family and partners. Messrs. Purcell and Co. have an exceedingly large interest in many of the mines of the State, a railway and other concerns, and stand very high in the esteem and goodwill of all classes of the community.

This firm first established a Bank in the year 1870, which carries on, in a prominent thoroughfare and a handsome building, a general banking business, there being a branch house at San Pedro, in the Laguna district, and centre of the cotton industry. In January 1906 Mr. Purcell formed his business into a small private limited liability company, in order to better carry on and manage the many different interests controlled by the firm in various parts of the Republic. The partners are: Jasper Foulkes Lynch, Felipé Helschneider, and Santiago Purcell, son of the founder.

Other firms which have helped to bring to the State of Coahuila its present great prosperity are Messrs. Demaso Rodriquez y Hijos, Messrs. Adeliado Lopez Hermanos and Clemente Sieber and Co., Mr. Isidro Lopez, Mr. Clemente Cabello, Mr. Franciso Arizpe y Ramos, and others. The Messrs. Marcelino Garza and Sons carry on an old and highly-esteemed banking business, while the Banco Nacional de Coahuila is also a flourishing institution. Several large wholesale houses, occupying premises which will vie with any in Mexico City for extensiveness and completeness of equipment, are to be found, the general trend of business being on the upward grade, in practically every department.

Commercially speaking, Coahuila may be regarded as an exceptionally prosperous State. This is due principally to the railway communication which it enjoys, perhaps the most complete of any in the Republic. Exports principally find their way to the United States, the metallic productions going over the Mexican Northern Railway from Sierra Mojada to Escalon (a distance of 78 miles), and thence over the Mexican Central lines to Ciudad Juarez, a further 419 miles. Coal goes to the States via Piedras Negras; flour goes to the adjoining State of Nueva Leon; cotton fabrics to Jalisco, Zacatecas Durango, Monterey and Mexico; salt, cattle, wool, skins, etc.,

COAHUILA—Distant view of City of Saltillo.

to several Mexican States, as well as to Texas; raw cotton, cereals, fruits and alcohol, as well as ixtle, all over the Republic and to the United States.

Piedras Negras is a customs port for all imports and exports finding their way to or from America, besides being an important market in conjunction with Saltillo, San Pedro de la Laguna, Torreon, Sierra Mojada, Monclova, Parras and Viesca. If I put the trade between Coahuila and the United States via the border city of Porfirio Diaz at $8,000,000 for exports and $8,500,000 for imports, I think I am well within the mark of the present day's values.

Already possessed of several factories of first importance, scarcely a month transpires but some new industrial establishment is founded, or application made to the State Government of Coahuila for permission, or assistance, in this direction. Cotton spinning and weaving are the chief industries, there being at present over 12 plants well filled up with the latest type of machinery—almost exclusively of British manufacture, I may add, the principal being El Labrador, La Aurora, La Hibernia and La Libertad, in Saltillo; La Constancia and La Fé, in Torreon; La Estrella, in Parras; La Esmeralda, in Ramos Arizpe; La Bella Union in Arteaga, and La del Bravo at Allende.

In Arteaga there is also a paper-mill; while throughout the State there are between 50 and 56 flour-mills. Among these the most notable are El Fénix and La Estrella, both in the Municipality of Saltillo, the San Lorenzo at Parras, and those of Manuel de la Fuente and Marcelino Galindo at Nadadores. There are 48 sugar-mills fitted with some British and some French machinery, the largest mill being perhaps that of Messrs. Gonzalez Treviños, situated upon their fine plantation Victoria.

Of wine and spirit factories there are close upon a hundred, to be precise 95, the various liquids being distilled from grapes, sugar-cane, quinces, the maguey (producing the national drink "pulquey"), mesquite and sozol. Parras and Cuatro Ciénegas possess the most important factories of this kind, whence come some delicious liqueurs made of the grape, which would tempt the palate of a Lucullus, and which anyhow secured the first prize at the Expositions at New Orleans,

Philadelphia, Chicago, Buffalo and Paris. Pastry and sweetmeats are also made in great quantities in Coahuila factories, and are exported to various parts of the Republic.

Of other factories of various kinds the State possesses some 1,262, most of them worked by steam. At Torreon and at Porfirio Diaz are some admirably equipped ironworks, and which turn out first-class work; while at the Hacienda de Hornos, in the Municipality of Viesca, there is a completely equipped foundry which makes practically every requirement, and effects every necessary repair, for the different Railways. Iron and steel foundries are established at Torreon and Viesca, and are enjoying a profitable trade.

To prove claim to one-eighth of the entire length of railway track in the Republic is no mean achievement, and that is what Coahuila can do. No other State possesses anything approaching the railway communication of this one, and every possible advantage is taken of the means of transportation. The following systems serve Coahuila, and serve it well :—

Name of Railway.	Kilometres.
The International	823
The National	168
The Central	779
*The Coahuila and Zacatecas	133
The Coahuila and Pacific	307
*The Mexican Northern	57
*The Coahuila Mineral Line	40
*The Hornos	3
Total	2,310

There are, additionally, many kilometres of tramways, worked both by electric and animal traction, Torreon possessing a first-class electric system, and Monclova, Allende, Matamoras, San Pedro, and Hornos mule-drawn services.

Without the close attention which the Government devotes to educational matters, the State could scarcely have attained the prosperous condition which it enjoys to-day. The sum annually expended upon education amounts to $315,000 (say £31,500). There are the Preparatory School, the Normal, sixty-four schools for boys, sixty-two for girls, and twenty-

* See also Chapter XXXII.

three for both sexes; while to teach them are employed 350 masters and mistresses, having under their charge 8,700 male and 7,503 female pupils. I understand that this year, so far as it has gone, a considerable increase in the school attendance throughout the State has been reported. In Saltillo alone last year this increase amounted to 30 per cent. In this city the schools contain 1,383 children attending the official classes, while the normal school has an average attendance of 140, and the primary annex 135. The Colegio Juarez, a primary establishment for girls and boys, which owes its origin to the enterprise of the Governor of the State, Señor Lic. D. Miguel Cardenás, is well attended at every sitting. The Juan Antonio de la Fuenté School has recently adopted several desirable innovations in the system of teaching, and one of the latest features introduced is a commercial class, at which the pupils receive a thorough business training, including the English language, book-keeping, typewriting, and stenography.

Attendance at school is compulsory for all children between the ages of six and fourteen, and the Government exercises the strictest supervision through its officers in seeing that none escape, or are allowed to play truant. The only exception made by the school authorities is in the case of children suffering from some physical or mental defect which incapacitates them from study, or who reside more than two kilometres distance from the school-house.

An entirely new normal school, costing £10,000, was finished this year, and is now in use. It possesses every modern improvement and convenience. The Saltillo preparatory school contains a museum, which has already several thousand different specimens, including a very representative collection of minerals.

I may mention that education is entirely free in Coahuila, as in all the other States of Mexico, and the pupils are not called upon to pay any fees whatever, nor yet anything for their books, stationery, or materials, even in the chemical and natural history departments, which are exceptionally well equipped with apparatus and models.

The City of Saltillo, also called El Centro, is the possessor of nearly 25,000 inhabitants, and is a pleasant place of

residence. Being the principal industrial centre of the State, it contains some fine buildings, which are daily being added to, such as the Governor's Palace and his private residence, a very conspicuous house designed with very good taste; the Zaragoza Theatre, the Catholic Cathedral, the Penitentiary, the hospital, the Bank of Coahuila, the Bank of Guillermo Purcell y Cia, and the State College.

Building is proceeding in every direction, especially around the plaza, where many of the old and picturesque houses are being demolished to give place to new and more commodious premises. Among additional factory buildings recently completed are the Smelter of the Mazapil Copper Company, Limited, which has involved an outlay of over £50,000; a guayule factory for the Anglo-Mexican Rubber Company, which has cost $200,000 (£20,000); the Colmena Flour Mill, costing $100,000 (£10,000); the Flour Mill of Clemente Cabrello and Co., costing the same amount; a new theatre, and the large general store of Messrs. Damosa Rodriguez and Co., which will cost $120,000 (£12,000).

The Casino, a remarkably beautiful building used as a club by the leading inhabitants of Coahuila, is one of the landmarks of the city. It contains one of the largest and most elaborately decorated ball-rooms to be found in the Republic. Handsome marble steps leading up to the main entrance, and costing between $4,000 and $5,000, have this year been added, being imported direct from Carrara.

Many reception and retiring rooms, a billiard-room containing ten tables, and a splendid pillared hall of marble and mahogany are among the Club's many attractions. Dances are given twice a month throughout the year, being attended by all the principal families of Saltillo. The Club, which is a proprietary establishment, possesses some 230 members, and its doors are hospitably opened to the ladies of the town, so far as the public reception and ball-rooms are concerned, and to all foreign visitors who may be presented by a Member. The Club forms the nucleus of an exceedingly liberal and spontaneous hospitality, the Saltillo families being among the most kindly and cultured to be found in Mexico.

Water-meters have lately been installed in all the principal Saltillo houses, and the local electric-lighting company are

making improvements—long-needed—in their equipment and services. New pavements are contemplated and would be welcomed, as the old cobble-stone roads are very unpleasant for those who keep good carriages.

The Municipality is completing a scheme for establishing a suburban settlement just outside the city, upon a high and bracing location, where many handsome private residences are contemplated. An association has also been formed to provide a large public garden and playground, where various athletic sports can be indulged in. The space selected covers 400 hectares, and here a park, drive-way, lakes, and pleasure-grounds will be laid out. A bowling alley has been arranged for by some other public-spirited citizens, there being five alleys, all of which are fully used.

A very few years ago Torreon, in the State of Coahuila, was little more than an Indian village, and while the surrounding country remains as flat and unattractive as ever, the town itself is becoming rapidly a city, and one of the most important commercial and industrial centres in the Republic. The Americans have had it entirely their own way here, and like Monterey, in Nuevo Leon, Torreon has become an American stronghold. Indeed, it is fast losing its primitive Mexican appearance, for, although there are still to be found whole streets in the adobe stage, the main portions of the town, surrounding and diverging from the railway-station, are being rapidly converted to the appearance of a prosperous and well-laid-out Western settlement. Brick and stone three-storied buildings are going up in several directions, two which have been completed—the buildings occupied by the National Bank, and the Bank of London and Mexico, facing one another at opposite corners of a street—affording some idea of what Torreon will look like in a few years from now. A stone-built hotel — the Salvador — some wide-fronted dry-goods stores, displaying, it must be admitted, a good deal of rubbish, and several well-conducted restaurants are already established, and apparently thriving apace. The streets swarm with hurrying, busy-looking American men, but few women are to be met with during the day.

A new American Colony is being rapidly built to the East of Torreon, known as the "Pajonal." Streets, tree-planting and

all the typical appearances of a neat American settlement are there, the houses being precisely alike and many jerry-built. Most of the residents already own their dwellings, while others are rented or purchased on time-payments. The mud roads, which are as yet pretty much as Nature left them, do not conduce to comfort or convenience, and the drainage—if any—is primitive and defective. Doubtless in due time this will be remedied, but to most minds it would appear somewhat mistaken policy to omit this indispensable arrangement in the first instance. The drainage of Torreon itself is very bad, and in the hot seasons the street smells are poisonous. But the foreigners' noses seem unable to detect them, and the Mexicans do not mind them.

The soil being extremely dry around Torreon, for the greater part of the year the inhabitants suffer greatly from the clouds of gritty dust which blow in the afternoons and evenings, covering everything with a layer of dirt, which, although not adhesive, is extremely disagreeable. In the rainy season this dust naturally becomes converted into a sea of liquid, sticky mud.

The amount of railway traffic experienced by the two principal lines serving Torreon, the Central and the National, has quadrupled itself within the last few years, and the future of Torreon as a prosperous community seems assured. The great industries of the place, which may be regarded as being centred in the Torreon Smelter (Compañia Metalurgica de Torreon) and the Rubber factory (Compañia de Guayule Continental), afford employment to nearly 1,000 men alone; while a foundry and several cotton factories, etc., etc., are increasing both their output and their plant continually. One of the latest forms of enterprise started is the *Torreon Star*, an exceedingly good specimen of the American news-sheet, printed in both English and Spanish, and published weekly. A very complete installation of electric trams, electric light in most of the houses, and a perfectly pure water service help to lighten living in Torreon of its many drawbacks.

DURANGO.—Calle Mayor, City of Durango, showing Cathedral towers on left.

CHAPTER XL

State of Durango: Physical distinctions—Fauna and flora—Agricultural lands—Maguey and tobacco—Cattle-raising—Imports—American capital—Banking conditions—Railway communication—City of Durango—Typical architecture—Old Spanish edifices and patios. State of Guerréro: Backward condition—Soil and climate—Population and industries—Acapulco—Railways and steamer accommodation—Mineral wealth—Some famous mines.

In spite of its great area, namely 109,495 square kilometres, the State of Durango, like its immediate neighbours Chihuahua, Coahuila and Zacatecas, has a very limited population, little over 370,000 in fact. The increase in immigration is exceedingly slow, and as the prosperity of the mining industry increases the paucity of labour available becomes more and more acute.

Durango, as a whole, is a pleasant State in which to live, since almost every variety of climate can be found there. The altitudes vary a great deal, the Western portions, for instance, where are found the Sierra Madre mountains, being very cold in the winter, while the region of the valleys and plains, extending from the foot of the mountain ranges, is temperate, and, in some localities, quite sultry. The Nazas plain, on the other hand, is wholly temperate, and very pleasant during the whole year. On the vast pasture-lands the climate is usually either very hot or very cold, rain being moderate and frosts frequent on the higher ground. A good deal of fever and pneumonia used to exist here; these diseases still prevail at certain seasons of the year. Since modern methods of treatment have been introduced very few fatalities occur.

Both mountain and stream are found in great beauty in Durango. The superb Sierra Madre, with altitudes varying between 2,500 and 3,500 metres, and the lofty peak of

Muinoxa as its crown, are extremely effective from a scenic point of view; whilst the Nazas River runs a course of 600 kilometres from the Sierra Mountains until it empties itself into the Lake of Habas, joining up with the Santiago and the San Juan Rivers on the way. There are several other picturesque and useful rivers, and a goodly number of small lakes, the principal of these being the Colorado, the Guatimapé, Ojo de Agua, Sanceda, Indé, and Atotonilco.

Some of the most beautiful flowers to be found in Mexico grow in the State of Durango, there being probably some 80 or 90 different varieties. Of birds and beasts generally the State has also a great assortment, and scenically it is one of the most beautiful parts of the Republic. Agriculture and mining are the principal resources, but ere long one will have to describe them as "mining and agriculture," since the latter is fast losing ground in the amount of the annual returns in comparison with the newer industry.

The finest portions of the agricultural lands are located in the partidos of Mapimi, Durango, San Juan del Rio, and Papasquiaro. The splendid soil produces to perfection all kinds of cereals—corn, maize, wheat, barley—cotton, tobacco, numerous kinds of fruits, leguminous plants, sugar-cane and other things. There are some 200 different plantations or farms, of which, however, only two or three are devoted to sugar cultivation; 150 to cereals; 8 or 9 to maguey (mescal), 3 or 4 to tobacco, and the balance to cattle-raising. The latter are situated principally in the partidos of Durango, El Ojo, Cuencamé, Nazas, Indé and Papasquiaro. I am informed that the number of the stock annually raised exceeds 1,000,000 head.

Trade is better to-day in Durango than it has ever been known to be in the history of the State. This is no doubt due to the largely increased American capital invested there, and the very many new residents who have arrived from the United States. As yet British interests in the State are few and of but small importance, but they promise to become larger at no distant date, several important mines now being under offer to British financiers.

Owing to the fact that Durango is an entirely inland district, it is very difficult to obtain any reliable information

in regard to the imports, but this much I may say—more than 60 per cent. come from the United States. American capital is, as already mentioned, especially active in the mining districts, a fuller account of which will be found under the chapters on mining. As to the exports from this district, they are composed almost entirely of bullion, silver being the principal mineral in value, and more than 90 per cent. of its exported products going to the United States. The Mint at Durango was closed in 1899, but it still remains one of the most important assay and registration centres of the Federal Government. The mineral products of the State greatly preponderate. Lead shipments have been falling off of late, the principal (United States) market having lessened its demand owing to finding supplies outside those of Mexico for the time being. Of the animal products, goatskins have, in the past, made up 95 per cent. or more of the whole. Shipments fell off somewhat when the new shoe-factory, known as "La Union," situated at Gomez Palacio, was started. This is a purely local enterprise, and is at present only in a modest stage of development; but nevertheless some 250 pairs of shoes of all grades, largely made from goatskins, are turned out daily.

Banking conditions are very forward in Durango, in spite of its limited railway communication. The Bank of Durango is a very successful institution, and has recently opened several smaller branches. It is managed entirely by young Mexicans, and quite recently its paid-up capital was increased from $1,000,000 to $2,000,000 (Mex.), while it has now a very handsome stone-building for its home. Apart from the State Bank, the National Bank of Mexico and the London Bank of Mexico have branches.

In addition to its vast mineral resources the State of Durango is immensely rich in standing timber, principally pine and oak; but until railway facilities are introduced the forests on the Sierra must remain practically untouched. I am told that something like 20,000 feet of merchantable timber to the acre is to be found in some of these regions, so that a striking opportunity awaits the capitalist who comes into Durango with the idea of working its virgin timber resources.

The partidos of Durango and Mapimi may be described as the commercial centres of the State, from which an active trade is maintained with the States of Sinaloa, Chihuahua, Jalisco, Zacatecas and Coahuila, as well as with the United States of America and Mexico City. The exports mainly consist of mineral ores (of which gold, silver and iron form the principal part), cereals, cotton, woods, fruits, live-stock, hides and skins, wools, tallow, etc., etc., while large consignments of cotton and woollen goods find their way to the neighbouring States of Zacatecas and Chihuahua.

On the other hand, Durango buys largely from other States and from America, importing considerable quantities of groceries, hardware, silk, cotton, wool, and linen manufactured goods, machinery, agricultural implements, mining tools, arms, ammunition, etc., etc., the whole trade of this progressive State exceeding by a long way $10,000,000 (say £1,000,000) per annum.

In regard to railway communication, Durango is better placed than some of its neighbours, always excepting the State of Coahuila, which is the best off of any. Both the Mexican Central and the Mexican International Railways traverse the State, but the City of Durango is poorly served.

At the present time several minor railway concessions are being financed, and will be commenced, if the present promising condition of things continues, this year. The Parral and Durango Railway Company is an American undertaking which was offered to British investors last year, and rejected. It runs for about 71 kilometres (say 45 miles) out to the Minas Nuevas, and is destined one day to become a valuable money-earner. The British investing public made a great mistake in declining to subscribe to this undertaking, in spite of the price which was asked.

Lic. D. Esteban Ferñandez, the Governor of Durango, is one of the most brilliant men of the Republic entrusted with State Government and its grave responsibilities. He is but 55 years of age, and both physically and mentally very distinguished. He formerly occupied the position of Secretary to the previous Governor, by which means he obtained a thorough idea of his duties and their multifarious obligations. He has materially assisted the progress of the State, and takes

the keenest interest in everything that concerns it. He is not an infrequent visitor to the Capital, where he possesses numerous friends, among whom he has the privilege of reckoning the President himself. His appointment dates from September 1904. He will unquestionably be re-elected on the expiration of his term next year.

The City of Durango is typically Spanish, with its numerous narrow streets running at right angles, frequent plazas (all laid out upon exactly the same scale, size and style), its long, low stretches of exteriorly ugly houses—but with delightful interiors, opening off patios gay with flowers and colour of every description. Some substantial buildings surround the main plaza, which, however, is rather small, but beautifully shaded by lofty, full-grown trees. The State House is a remarkably well-preserved Spanish edifice. The city is about three hundred and fifty years old, the site which it now occupies having been a ranch, the owner having given away lots to settlers who would help to protect him against the Indians.

One of the least progressive States of the Mexican Union is that of Guerréro, which has made practically no advance beyond a little mining enterprise during the past half-century. The only distinction which I can trace to this State is that of having been selected as the meeting-place of the first Congress of Mexico, on September 13th, 1813, in the Capital, named Chilpancingo. The State has not yet any system of railroads, only very indifferent roads, and produces but little, although, no doubt, some day, under a greater amount of State governmental impetus, this part of the country may awaken from its lethargy, and fall into line with the remainder of the Republic.

Whereas the total area of the State measures nearly 65,000 square kilometres, there is a population of only about 479,300, and of these the great majority are ignorant Indians, with no ambitions, no resources, and no especial encouragement to improve their present condition.

It is impossible to say what the State of Guerréro, under some intelligent and enterprising scheme of development, might do. The soil is as a rule very rich, and being a maritime State with a fine port—that of Acapulco—a mining

region believed, but not as yet proved, to be one of the richest in the Republic, and a suitable climate for the cultivation of coffee, cotton, sugar and cereals, there is a fair prospect one day of Guerréro becoming an important contributor to the nation's wealth. At present, it must be admitted, the entire commerce of the State is of little importance. This is greatly due to the already-mentioned fact that there are no railroads in the country, nor, so far as I have been able to ascertain, any immediate prospects of constructing any.

Another very serious drawback to the progress of the State is the unhealthy character of the climate. This is particularly deadly for Europeans and Americans, and even the natives themselves are unable to resist the ravages of the pernicious form of malaria which continually prevails there, sometimes whole villages being prostrated from the epidemic. Such trade as there is mainly consists of minerals, live-stock, cotton, fruits and woods, as exports; and manufactured products, food products, hardware, machinery, tools, implements and dry goods as imports, practically all these latter coming from the United States. At Acapulco there is a maritime Custom House, but the entire annual receipts scarcely exceed the pitifully small sum of $500,000 Mex. (say £50,000). Probably the entire trade of the State amounts to little more than $10,000,000 Mex. (£1,000,000).

The mineral wealth of Guerréro is, as yet, an unknown quantity, but there are those who have made a close examination of the State who declare that, in a few years' time, in fact, so soon as railway communication can be secured, Guerréro is likely to become one of the most prominent mineral producers in Mexico. As I have shown, Guerréro has remained *in statu quo* for the last quarter of a century in regard to means of locomotion, if I except the completion of what is now the terminus of the Cuernavaca division of the Central Railway, at Rio Balsas. The other outlet in the direction of the State of Mexico, at San Juan de las Huertas, also the terminus of a small road, is located at a considerable distance from the principal producing mines of the State, such as Campo Morado. The latest and most extensive mining camp to be opened-up in the State of Guerréro is Taxco, of which there is much hope.

DURANGO.—Entrance to the Penitentiary in the City of Durango.

The best-known individual mine in this district is the Real, which has been worked on and off for a good many years; but the ore has to be transported on pack mules for a long distance, occupying over 4 or 5 hours, according to the condition of the tracks. The Pedregal el Rosario, Noxtepec, Poder de Dios, Tetipac and the Pregones Valley, all of which are situated in the immediate vicinity of Taxco, are highly mineralised mines, but the companies or individuals owning them require the necessary capital for adequate development. The Mitchell Mining Co. own La Ditcha, where a fair amount of development has proceeded, one of the shafts being down 700 feet and a cross-cut having been run to catch the main-ore body. Los Grados, which belongs to a small American Company, has shown concentrates running as high as 61 kilos of silver and 200 grammes of gold. I have also seen a small sample of ore which assayed $45,000 (£4,500) in gold values to the ton, but it came from a pocket, so that this cannot be regarded as any criterion as to the value of the district. La Rambla Real owns mines in the district of Juliantia, in the municipality of Taxco. The capital is a small one, $30,000 (£,3,000), and nearly all the proprietors are Mexicans.

Besides gold and silver, opals are found in considerable quantities in Guerréro, the two most famous mines being San Nicolas del Oro and Huitzuco. There are two classes of opals, the common and the fine, the former having a milky-white colour, with a tendency to yellow more or less marked, while the fine opal presents many beautiful variations in colour, ranging from a topaz-yellow to a pale-red, with vivid flashes of red and green. At Huitzuco, where quicksilver is also worked, the opal is found in traquite rock, and the quality is of dark blue-grey, almost a black, from which red and green colourings flash with the varying light.

The port of Acapulco was to have been connected by railroad with the interior of the Republic, and many optimistic and enterprising capitalists have set out with the intention of completing the undertaking. Among others was the Interoceanic Railway, a British Company in the first instance, but now forming part of the National Lines System, and the concession for which covered the construction of a line "from Veracruz to Acapulco"—hence the name "Interoceanic."

But the extension to the Port of Acapulco never has been, and, to my mind, never will be built, at any rate by the Interoceanic Railway, the physical difficulties being enormous and the expense prohibitive. The State Government is too poor to help out any such form of enterprise, and too unenterprising to evince any particular amount of interest in it, either. The port is nevertheless a splendid one, and, as it is, a considerable amount of shipping goes on there. The Pacific Mail Steamers call there, as well as those of the Compañia Mexicana de Vapores del Pacifico y Golfo de California. The number of vessels entering the port annually is about 220 to 240, and of those sailing thence between 220 and 230, mainly small steamers of native ownership. The total value for 1905-1906 was estimated by a local official as being $500,000 (Mex.) as exports from the Republic and $520,000 as imports.

The inland trade has made but little advance during the last decade, and to-day does not exceed, if, indeed, it equals, $3,000,000 (£30,000) annually. The only manufactures worth recording are the products of the sugar-cane, palm-oil, cotton-spinning, tanning, and the limited amount of agricultural produce.

The State of Guerréro is, as I have indicated, a large one, and is composed of 14 different districts.

In the spring of this year a disastrous earthquake, which affected the whole of the Pacific Coast of Mexico to the extent of some 500 miles, caused much destruction of life and property in both Acapulco and Chilpancingo, as well as in other towns of the State of Guerréro. The country was in no position to withstand so severe a financial calamity, and acute commercial depression has followed as a matter of course. This visitation will probably mean a set-back for Guerréro for an almost indefinite time, and whatever chances there may have been for foreign capital to have regenerated the State seem now to have vanished.

This is not the first time that Chilpancingo has suffered from seismic troubles, and which have always occurred in connection with Colima disturbances. In 1887 Chilpancingo was partially destroyed by an earthquake, and a number of lives were lost, while again in the year 1900 the unfortunate city was a victim, several hundreds of people being killed, and

thousands rendered homeless. This disaster is still fresh in the memories of the people of Mexico, and forms the subject of conversation among the old gossips of the State. In fact, such events as births, deaths and marriages are reckoned from that black period in their history.

Some of the villages are wretched-looking places, and for the greater part the inhabitants seem to be dull, sullen and discontented, apparently unfriendly to foreigners and unwilling to extend them any welcome or assistance. One of the greatest troubles of the State is the myriad of poisonous and venomous insects of every description. Several foreigners have been bitten, and have died from the attacks of these pests, scorpions, centipedes, tarantulas and mosquitoes apparently thriving here as they thrive nowhere else in the Republic. Even the natives complain bitterly of the affliction.

CHAPTER XLI

State of Guanajuato: Mining fame—River systems—Scenic surroundings—Trade and industry—Imports and exports—Railway communication — City of Guanajuato — Public buildings — Social life and amusements—Hidalgo, Patriot priest—City of Leon—Native industries—Electric-light plants—Braniff interests—Cotton factories—Woollen industry—*Charro* costumes—Tramways—Busy inhabitants —General prosperity.

The State of Guanajuato has become almost universally known by reason of the valuable silver and gold mines which have been discovered there, but it would be an entirely erroneous impression to suppose that mining is the sole industry of this State. In addition to its extensive natural deposits of precious minerals, there are fertile lands, populous cities, excellent railway services and other recommendations which entitle the State to careful consideration. It possesses, moreover, a striking topographical aspect, unlike in many respects that of any other part of Mexico. The situation of the land is on the Cordillera of the Anahuac. The north-west and central sections are traversed by mountainous ranges, while to the west and south extend the remarkably rich valleys of San Felipé, San Judas and Santiago, as well as the beautifully fertile plain of El Bajio.

One of the greatest advantages of the Guanajuato State, particularly from an agricultural and mining point of view, is the abundance of water. Several rivers course through this portion of the country, and water the State from end to end. There is, in addition to the three rivers the Lerma, the Laja and the Turbio, the Irapuato, a smaller but equally useful stream, and the Yuririapundaro, or "Lake of Blood," about 97 square kilometres in extent, and dotted with several little islands.

The State of Guanajuato may be reckoned as one of the most prosperous mercantile centres of the Republic. The total value of the trade carried on by the State may be put at some £13,400,000 ($67,000,000, U.S. Cy. or $134,000,000 Mex. Cy.) per annum, which, for a population of little over 1,000,000, is an excellent showing. The chief sources from which all this commercial industry arises comprise principally the minerals, which go to Mexico, the United States of America and Europe, and which represent about £4,000,000; secondly, agricultural and other products to the value of £2,000,000, most of which find their way to the home States; and thirdly, exports of industrial products, amounting in value to some £400,000. The State, on the other hand, imports from Mexico City, the United States and Europe, goods to the value of £2,400,000 ($12,000,000 U.S. Cy., $24,000,000 Mex. Cy.). Of this, about £600,000 comes from the neighbouring States of Mexico, and the balance is made up of purely local trade. The imported commodities include groceries, ready-made clothing, textiles, hardware, drugs, arms and ammunition, canned goods, agricultural and mining machinery and tools, etc., etc. There is a considerable portion of inter-State commerce, comprising such articles as pulque, mezcal, tequila, fruits, coffee, etc., etc., some of the finest of the latter coming from the Estates of Messrs. Braniff, who make a speciality of this product. The principal exports, after minerals and agricultural products, are live-stock, cotton-goods, etc.

There are few States in the Republic of Mexico which possess to-day a better system of railway communication than that of Guanajuato. Wide as it is, however, the thriving condition of the country and its astounding rate of progress have already rendered an augmentation necessary. Shortly after these lines appear in print, a further improvement will have been effected by bringing the Central line of railway right into the City of Guanajuato. Up till now, the Central main-line has stopped at Silão, about 11 miles from the outskirts of the City. Both passengers and goods have been conveyed from Silão to Marfil upon a branch-line, and thence on an antiquated mule-line of trams into the city. Naturally, much and aggravating delay was occasioned by so slow and

tedious a process of locomotion, and the completion of the new railway communication, with a depôt in the heart of the busy city itself, will mean an immense benefit to the commercial and mining community at large. The State of Guanajuato is served generally by both the Mexican Central and the Mexican National Lines of Railways.

The mines of Guanajuato will be found treated more fully in Chapter LXX.

The City of Guanajuato, which is the capital of the State of the same name, with its 80,000 population, is a strange mixture and assimilation of the old and the new, of the picturesque and the strictly utilitarian. Side by side with the humble adobe dwelling, towers some handsome edifice surrounded by its beautiful gardens. There are quite a number of elegant buildings in the City, such as the Téatro Juarez, the Palace of Legislature and the Halls of Congress; while the Esperanza Reservoir, the Electrical Power plant, the Parque Porfirio Diaz, known as "El Cantador," the Présa de la Olla, and the State College, where a unique collection of mineral specimens is to be found, are also notable additions to the attractions of this fortunate town. In spite of its curious formation, being, as it is, built on and up the steep sides of a narrow ravine in the mountain range, Guanajuato is remarkable for the large number of beautiful private residences, the great majority of which are conspicuous not alone by the elegance of their architecture, but by their superb gardens, which front and sometimes entirely surround them. In these gardens are to be found every kind of sub-tropical plant and flower; and the grounds, viewed from a height, afford one the impression that Guanajuato is growing out of the centre of a huge green oasis, while nestling closely in the hollow of the superb rolling hills which surround it.

A very pleasant phase of Guanajuato social life is the good-feeling and *bonhomie* which exist between the various foreigners living there. The American element considerably predominate, but there are several Britishers, Germans and Frenchmen who provide the leavening element, the combination forming an agreeable *côterie*, all the members of which are on good terms with one another. The relations also

existing between the foreigners and the official circles are of the very best. As a whole, Guanajuato may be considered a very desirable place in which to live, as much by reason of its social attractions as by its picturesque surroundings and its splendid business opportunities. Its historical associations moreover are most interesting, being closely indentified with the Patriot-Priest Hidalgo, whose history forms one of the most striking examples of heroism, and whose end was that of most patriots who have been born a little too soon. His memory is much revered by the Mexicans of to-day, and after him the State of Hidalgo has been named, while his effigy in stone is to be found occupying a prominent place in many of the cities of the Union.

I know of no town in the Republic of Mexico, even where the installation of electric power has been but recently introduced, where the venture has failed to prove successful. At the large and flourishing town of Leon, in the State of Guanajuato, it has been in use for a good number of years. At first the plant was worked by means of a steam-plant, the introduction being effected by Mr. Oscar J. Braniff, who owns the hacienda of Jalpa in the same State, and not very far from Leon. When long-distance electric power was installed at Guanajuato in 1903, Mr. Braniff, by means of an agreement with the Guanajuato Light and Power Co., substituted an entirely new and enlarged plant, the old system being gradually done away with, and a new 40-kilometre electric transmission line from Guanajuato installed. At the same time was adopted an entirely new system of distribution, both for light and power, and this has worked, to the present time, without the slightest intermission or accident.

Inasmuch as the City of Leon contains some 80,000 inhabitants, besides a great many large factories and an immense number of smaller ones, and as it is the centre of a busy and prosperous agricultural community, composed of a host of small farmers who require to pump their supply of water from the ground, the provisions of electric-power is bound to prove a highly remunerative enterprise, and, indeed, is increasing in the number of the users daily. Since the commencement of the new service, some 2 years ago, the amount of power distributed has been more than doubled,

and over 100 meters, ranging from 2 to 100 h.p., are now working, or are about to commence working.

The sole owner of this enterprise is Mr. Oscar J. Braniff, of Mexico City, and he is now about to organise a small limited liability Company to acquire the undertaking, since he considers, and very justifiably, that the enterprise, having been proved to stand upon a solid and paying basis, not only in regard to its present but also as to its future position, that it should be ripe for offer to those who require a sound, conservative investment. The whole of the electrical machinery is of the celebrated Westinghouse make. Mr. Braniff's firm (G. and O. Braniff, of Mexico City) are largely identified with the Westinghouse interests in the Republic of Mexico.

Leon is the centre of a stirring woollen and cotton manufacturing industry, and several factories are run there at considerable profit. One of these is La Americana, a mill belonging to an old Mexican lady, Madame Pastillo, aged 82, and employing some 300 men. The management is in the hands of an Englishman, Mr. William J. Fromow, who hails from Pembrokeshire. The mill works day and night, turning out both cloth and yarn, known as grey-goods, but in a crude state only, being sold in this condition, and not even packed. There are four or five kinds of the cloth manufactured, but although the opportunity exists of introducing and profitably working a bleaching plant, the proprietress somewhat unwisely declines to avail herself of it.

I have often been impressed by the purblindness of some Mexican manufacturers in this respect, neglecting chances and refusing suggestions which would profitably employ their spare floor-space and unused capital. One firm preferred to keep $250,000 (say £25,000) locked up in the office safe, earning absolutely nothing, rather than invest it in a new and economising machine, or to extend the operations of the factory in some other equally profitable direction.

This concern pays from 15 to 20 per cent. upon the capital invested, all the workers being Mexicans, but the machinery is entirely British. The manufacturers who have assisted to equip this mill are Brooks and Doxey, West Gorton, Manchester; Howard and Bullough, Limited, Accrington; and John Livesey, Blackburn.

City of Chilpancingo, State of Guerrero.

City of Cuernavaca showing the volcanoes of Ixttaccihuatl (on the left) and Popocatepetl (on the right.)

El Progréso is another factory here which produces various kinds of woollen goods. It is the property of three brothers named Padillo, one of whom, the youngest, acts as General Manager. Many descriptions of blanket, rug and *zerapé*, the native wrap, the latter being used by every Mexican man, and *reboso* worn by the women, are produced, and in all colours of the rainbow, but principally a bright red. Some parti-coloured and intricately-woven patterns likewise are turned out, a workman taking 3 days to make one complete blanket, measuring $2\frac{1}{2}$ metres in length and 1 metre in width. The average earning wage of the weavers is $2 (say 4s.) a day, and there are some 250 men and boys employed at El Progréso.

Some of the most elaborate of the *zerapés* are made upon the old style of wooden loom, no machinery yet invented being capable of turning out this special kind of work.

The factory, although of some years' existence, is a clean and well-built place, and is efficiently equipped. The machinery employed is partly British and partly American. Messrs. Hutchingson, Hollingworth and Co., Ltd., of Dobcross, and Messrs. William Whitely and Sons, of Lockwood, Huddersfield, have supplied most of the spinning and weaving looms; while Messrs. L. J. Knowles and Bros., Rochester, Mass., U.S.A., and the Davis and Fresher Machine Company, North Andover, Mass., have furnished some other machines.

Besides the regular factories, an immense amount of home-work is done. It may be said with truth that there are but few drones in Leon, every house having its own staff of workers, and being a factory *in petito*, some turning out woven or basket goods, others saddles, harness and bridles, as well as most of the other kinds of elaborate horse equipment so dear to the male Mexican heart; boots, shoes and leathern goods, and complete costumes in leather for men, consisting of tight-fitting trousers with a multitude of straps from the thigh down to the ankle, vest with innumerable buttons, and short Eton jacket with many pockets. These costumes, which in spite of their light appearance are extremely hot and heavy to wear, are made in various coloured or undyed leathers, pale yellow, pink, and red, etc., being the favourites, and

these are elaborately trimmed with embroideries, braids and tassels.

Leon is altogether a rather surprising town. Upon arriving at the station it is astonishing to be informed that the "city" has been reached. There is not a house to be seen, the station being some four or five kilometres distant. A tram-line carries the passengers on one car and their luggage on another over the intervening distance, and gradually the long straight streets, all at perfectly right angles to one another, come into view. That the town is a large one may be believed when it is said that there are 10 different plazas, 230 or more public squares, over 500 streets and 7,800 houses. The town is an old one, having been established by the Spaniards in 1552, and became a full-fledged city in 1810. It possesses several very interesting churches, not the least of which is the Cathedral, Nuestra Señora de la Luz, a church which is 200 ft. long and only 45 ft. wide, crowned with a fine dome and two lofty towers, the electric lights upon which can be seen across the perfectly flat country some 40 miles distant. Other churches worth description are those of Nuestra Soñora de los Angeles, containing some curious native carvings, La Soledad, San Felipé and San Juan.

The busy citizens may be seen at their tasks squatting before their doors in small groups, as much as possible being performed in the open air, and with no attempt at secrecy or seclusion. A good deal of iron-ware and cutlery are also made within these domestic walls, after which all goods are brought to the big wholesale houses, and are there bought at the regular market price, and promptly paid for.

CHAPTER XLII

STATE OF HIDALGO: Mining—Agriculture—Transport, etc.—Manufactures—City of Pachuca—Governor Rodriguez—His fostering of education—Government Palace—Tragic history—Feast of San Francisco—American capital invested. LOWER CALIFORNIA: An unknown territory—Great mineral resources—Absence of capital—Foreign trade—Principal ports—Steamer communication—Lack of railways—Pearl fisheries—Petroleum—Value of land—Prospects for settlers.

So far as actual size of territory is concerned, the State of Hidalgo is not of first importance, but in most other respects, and especially that of mining, the State ranks as among the more interesting and remarkable in the Republic. The total area is but 22,215 square kilometres, while the population of over 606,000, which, compared with the average of such States as Chihuahua, Sonora, Guérrero, etc., is uncommonly good. The climate, on the whole, is pleasant and healthful, especially in the uplands and plateaux, the lower districts offering a temperate or hot climate at different altitudes. While there is a large area of mountainous region, with several prominent peaks, the rivers are few and of but little consequence, except, perhaps, for irrigation. On the other hand, there is at least one very beautiful waterfall, that of the Regla Cascade, and a fine lake known as Metztitlán, this being over 17 kilometres long. There is an exceptionally large number of mineral springs, some of which are of great medicinal value.

Of the immense mining resources of Hidalgo and its former production, especially from Pachuca, the whole world has heard. The agricultural industry of the State is only of a little less importance. This comprises practically every kind of cereal product, as well as coffee, sugar, cotton, tobacco, maguey and leguminous plants. The State contains some 210

plantations, more or less, many of great size and importance, and these may be classified productively as follows: Cereals, 52; maguey-plantations, 130; sugar-cane, 8; tobacco, 1; cattle raising, 18.

No one can fail to observe the air of general prosperity of the State in passing through it, the population generally seeming to be better off and as a consequence more satisfied, than in some parts of the Republic already referred to.

In point of communication, the State is exceedingly well provided, having three different systems running through the country, *viz.* the Hidalgo and Nordeste, connecting the capital of Pachuca with Mexico City, and now forming part of the National 'Lines'; the Mexican Central and the Mexican International. In all, this comparatively small State has nearly 400 kilometres of railway line, with a prospect of still further extensions in the near future. A tramway system, at present operated by mules but soon to be electrified, runs for some 8 or 9 kilometres through the City of Pachuca, in addition to which there are several small private railway lines constructed in connection with the various mines in operation.

Although, as indicated, mining is the main resource of Hidalgo, manufactures as well as agriculture figure prominently in the State's revenue returns. Cotton and woollen goods, bricks, tiles, matches, and many other products are made here; while of the native pulque great quantities are annually produced and exported to various parts of the Republic. Some two or three years ago the returns from this product alone showed 776,835 hectolitres, valued at $1,096,586. Since that time, however, the output has materially increased. Cereals reach an aggregate in value of about $2,750,000; sugar-cane products $460,000; rum $198,000; tobacco, cotton, etc., are also of some moment.

The capital, Pachuca, is a very quaint and interesting town with all the characteristics of a Mexican mining centre. It reminds one somewhat of Guanajuato, and I believe that one day it will again stand forward as one of the richest producers of minerals in the Republic.

The Governor of the State (Señor Don Pedro L. Rodriguez) has devoted a great portion of his time and attention, as

HIDALGO.—The City of Pachuca, showing the famous Rio del Monte Mines in the distance.

well as no small portion of his personal fortune, to the cause of education. Indeed, the arts have no more ardent advocate than he. His own sons have been educated abroad, and speak English fluently. Every encouragement, consistent with fairness and sound judgment, are afforded foreign capital in the State of Hidalgo, and as I have pointed out, American capital is coming into the State very considerably of late in connection with mining and other enterprises.

The Spaniards have left here an enviable inheritance in the form of some fine buildings, together with a collection of religious edifices of great interest to the archæologist and historian. The Governmental palace, which, by-the-bye, was in some jeopardy of collapsing last year, but which has since been restored, was once the scene of a ferocious crime, the owner, a wealthy Spanish Count, having been barbarously murdered, and his body concealed for some days before discovery was made, the object being to remove an unwelcome creditor whose demands were found somewhat inconvenient.

Pachuca is remarkable from the fact that, almost alone among the towns of the Republic, it has houses with chimneys. These give the dwellings, with their flat-topped roofs, a somewhat quaint appearance; but as it is sometimes very cold here in winter, these same chimneys mean warmth and comfort within the houses, and prove very welcome to the inhabitants.

The time to see Pachuca at its best is at the feast of San Francisco, which extends from September 30th to October 8th. Then the whole city gives itself up to feasting and frolic, gambling, cock-fighting, and the attractions of the bull-ring. It is a curious sight for the European and the American, and one but seldom forgotten.

A considerable amount of American capital is invested in the Pachuca district, but as yet the British holdings, which were once extremely large, are small, and are still dwindling. A local hotel is kept by an Englishman named Williams, and one or two of the mines have British employees; but the great preponderance of foreign capital is that of Americans, whose relations with the natives, both official and unofficial, are of the best possible character.

That long, narrow stretch of land which in form reminds one of Italy, known as Lower California, is *terra incognita* to the great majority of travellers, and even to a great many Mexicans. The extreme length of the peninsula is 1,500 kilometres, and, as a consequence, its coast line measures 3,000 kilometres, bordered by a number of small and unimportant islands. What Nature has bestowed upon it in salt water she has withheld in regard to fresh; and, as a matter of fact, Lower California is sadly deficient in means of natural or artificial irrigation. With the exception of the Colorado River in the north, and several small streams in the central and south part of the peninsula, there is practically no water to be found. As a consequence the majority of the land is sterile, and affords little opportunity for agriculture until a system of irrigation has been found practicable.

A natural product is archil, a kind of Spanish moss used for dyeing purposes, which grows profusely throughout an extensive belt upon the upper part of the west coast, and in which a considerable local and foreign trade is done. Henequén, which is generally grown in arid districts, is found in the central regions, while hemp is cultivated near the Colorado River.

The climate is hot and dry in the north, and temperate towards the south. The total area of the peninsula is 151,109 square kilometres, but a very small proportion of this great stretch of territory is cultivated. The great future for Lower California, in my opinion, lies in her almost unknown treasure in both mineral products and precious stones. Apart from gold, silver, copper, lead, gypsum and coal, great quantities of different kinds of precious stones have been found, but unfortunately these have been discovered generally in such small sizes and so broken and otherwise injured, that they have found practically no market value. Nevertheless, throughout the country may be seen strong surface indications of the presence of many kinds of precious gems, such as hyacinths, beryls and garnets, as well as onyx, opals and great quantities of beautiful marble. Gems from Lower California are continually being shipped to the London market, and fetch there fair prices; but of the great number which come over here, only a very few are considered market-

able. Hitherto mining has been carried on in the most primitive manner, which may be explained by the fact that very close to the surface are encountered hard rock ledges, for which the instruments hitherto used are useless. Nevertheless it is believed that in some districts stores of rich gems are hidden; but up till now no serious attempt to mine them has been made.

The foreign trade of the Territory is conducted through the Custom-houses of La Paz, San José del Cabo, Santa Rosalia, and Todos Santos. As yet, trade is on a very modest scale, the combined imports not exceeding $2,500,000 (Mex.) and exports $1,920,000 (Mex.). But, then, the entire population does not exceed 48,000. There are, strictly speaking, no railways on the peninsula, for the two small steam-trams, one belonging to El Progréso Mining Co., measuring 10 kilometres, and the other belonging to El Boleo Mining Co., measuring 3 kilometres, scarcely count. Steamer communication is also rare and very uncertain, but several lines of boats advertise a service between the ports of the peninsula, there being 6 Mexican and 1 American vessel engaged in the coast trade. The principal City, as well as the chief port, is La Paz, capital of the southern district, and contains a little over 5,000 inhabitants, the only other large town being Ensenada de Todos Santos, situated in the northern district, and having about 2,000 inhabitants. The peninsula is divided into two districts, the northern and the southern, the latter being subdivided into two *partidos* and seven municipalities.

Poor as business affairs have generally been in this part of the Republic during the last few years, they declined still more in the year 1905-1906, due in great measure to the continuance of the drought. It is astounding what a different aspect the country presents after a liberal season of rain. Then it is literally covered from end to end with splendid pastures, and resembles one vast, green prairie. So severe, however, was the drought to which I have referred that scarcely any cattle now remain, and in all probability it will take another three or four years before the normal state of affairs is restored.

Baja, or Lower California, should be well worth exploitation in spite of its many drawbacks, since, in addition to its

agricultural possibilities (always supposing that irrigation could be resorted to), it has some mines of great promise. I believe that, were a careful and systematic prospecting of Lower California undertaken, some surprising developments would show themselves. The minerals consist principally of gold, silver and copper, and as claims can be picked up at a very nominal price, this should be found a good field. Up till now, however, few people, as I have observed, have found their way to this district. The nearest railway communication is some 200 miles from Guaymas, which is the terminal of the Sonora Railway.

The pearl fisheries which are carried-on on the coast have so far met with very fair results, and the cultivation of the mother-of-pearl oyster is proving so encouraging that in a few years the production should be greatly extended, and offer a fair speculative opportunity for capital. The shells in which the pearls are found are of good commercial quality, and would be found serviceable in shell-button factories. Petroleum is also at hand, strong indications of oil being found on the west coast, and oil has been detected on the waters at various places round about. One serious attempt was made to prospect for oil in the district of La Paz, but the machinery broke down, and instead of oil a large flow of artesian water was started, which rather astonished the experts, who believed that no water was to be found in this neighbourhood. The price of land is very low in Lower California, and if a series of artesian wells were sunk, I feel assured that effective and systematic irrigation could be introduced, for the soil responds to treatment in the most generous style. Richer land could not be found anywhere, and cereals, fruits and sugar cane in unlimited quantities could be cultivated and even a market found for them.

CHAPTER XLIII

STATE OF JALISCO: Richness of territory—Sugar growing—Cotton cultivation—Some notable factories—Agriculture—Railway facilities and extensions—Distilleries—Government taxation—Governor Colonel Ahumada—Public education—Schools—Life in the City of Guadalajara—A clean and attractive city—Native population—Cost of living—Plazas and public edifices—Peons and orderliness—Churches—Resorts—Lake Chiapas—Ribera Castellanos—Beauties of scenery—Paradise for artists.

THE State of Jalisco ranks next in importance to that of the State of Mexico, which contains the capital City of Toluca and the Federal capital, Mexico City. The population of Jalisco is 1,300,000, the capital, Guadalajara, claiming 102,350 inhabitants. The entire State covers an area of 86,752 square kilometres, and has a coast line of 500 kilometres. Almost every variety of mountain scenery can be found in Jalisco, some of the most famous mountains, such as Tapalpa, Tigre, Nevado and the famous volcano Colima, being within its borders. The mountains form a veritable network of spurs and isolated peaks, and are known as the Sierra Madre range. In between nestle the picturesque and fertile valleys of varying altitudes and extent, no State in the Republic probably possessing a more enviable territory, nor one better watered by natural lakes and rivers. Neither can any other State lay claim to a greater variety of *fauna* and *flora*, while the peculiar topographical conditions which prevail, embracing a wide variety of climates, render this region one of the richest agricultural sections of the country.

Sugar is one of the leading products of the State, the annual output reaching 12,000 tons of refined sugar and 10,000 tons of raw sugar, worth respectively about £500,000 ($2,500,000 U.S. Cy., or $5,000,000 Mex. Cy.) and £240,000 ($1,200,000

U.S. Cy., or $2,400,000 Mex. Cy.). In the District of Cocula alone, which is situated in the temperate zone, there is an annual production of 10,000 tons of sugar, which is three times larger than that of the entire State of Veracruz. There is one hacienda situated in this district which has realised a profit from sugar cultivation of $1,600,000 (Mex. Cy.) in one year. The State of Morélos alone exceeds that of Jalisco in its sugar production. The cane grows with great rapidity in this part of the country, and once planted it need not be renewed for eight or ten years. In some other States, such as Morélos and Zacatecas, on the contrary, where the cane only grows by means of artificial irrigation, it must be replanted every two years. Cattle-raising is also carried on to great advantage and profit, although this industry can only be considered as yet in its infancy. There is a considerable number of large ranches or farms in this State, many of which constantly employ between 500 and 600 labourers and from 200 to 300 horses and mules in their daily operations.

Among the State's other products the cultivation of cotton is actively pursued, and I am inclined to think that in Jalisco could be grown the finest cotton in the world, while no need to export it would arise, since the demand of the Mexican cotton manufacturing industry, which has enormously developed during the last few years, would absorb all that would offer, a fact which is clearly apparent when it is stated that the demand for the raw material is so great that nearly 70 per cent. of that consumed is brought in from the United States.

Several thousands of Mexican peons are employed in the cotton factories in Guadalajara, among which La Compañia Industrial Manufacturera, with a capital of $4,000,000 (Mex.), holds premier place. The mill is at a little distance from the city, and possesses 750 looms. The machinery is run by electricity, generated by the famous Juanacatlán waterfalls. The principal product is "manta," or unbleached linen, for which there is a constantly increasing demand. In another direction, also close to the City, are the mills of La Compañia Industrial de Guadalajara, having a capital of $2,000,000 (Mex.), and owning the factories of Atemajac and Experiencia. The first contains 164 and the second 180 looms, all of which, with the attendant machinery, are of British manu-

facture. Two other factories of only slightly less importance are those of Escoba and Rio Blanco.

The principal agricultural productions of the country, according to official statistics of a few years back, showed that cereals reached $20,200,000, corn being the largest item, and represented by nearly $19,000,000; sugar-cane products were valued at $900,000; alcohol at $1,000,000; pulque, $3,100,000; maguey, $140,000; coffee, $160,000; and tobacco, $124,000. All these figures are in Mexican currency.

The mining industry of Jalisco is one of the most important in the Republic, and I deal fully with the subject elsewhere.

Jalisco for many years was famous for the number of alcohol distilleries which existed. This year, however, the falling off in the output of tequila will be considerable, owing to the continued high price of corn, the principal ingredient. Last year the alcohol manufactured in the State amounted to 500,000 gallons, the industry paying over $39,000 (Mex.) in taxes. This year the production is estimated at but 386,000 gallons, and the dues assessed will amount to a little over $30,000 (Mex.). In the whole State there are about 167 alcohol manufactories, and out of these 80 are now idle. In Guadalajara alone there are, or were, 51 distilleries, and out of these 21 have been compelled to close down. So far as the moral and physical effect upon the peon population is concerned, the depression in the alcohol business is not to be regretted.

Unfortunately the system of railways at present constructed is wholly insufficient for the demands of the State, but several new concessions have recently been granted, and active construction is going on in many directions. The main line of the Mexican Central passes through the north-eastern portion of the State, a branch line running through Lagos to La Barca, Guadalajara, and Ameca. It is intended to extend this branch ultimately to the Pacific coast, thus opening up a region rich in forests and agricultural and mineral wealth.

The Central Railway is also constructing a line from its present terminus at Tuxpan to the City of Colima, in the neighbouring State of that name, which, linking up the miss-

ing portion between Tuxpan and Colima, will thus provide direct communication from the Gulf-side of the Republic at Tampico to the Pacific-side at the Port of Manzanillo. The construction of the splendid harbour at this latter port, at the instance of the Mexican Government, together with a plate showing the plan of the harbour, the breakwater and the varying depths of the bay, will be found in Vol. I., Chapter XXXV.

Guadalajara possesses a very enterprising City Council, the City Fathers giving much of their time and attention to the interests of the community at large. There is very little that escapes their notice, from the cleaning of the roads to the imposition of taxes on automobiles, and, however much the inhabitants may "kick" against the sometimes embarrassingly close attention paid to their affairs, there can be no question that the City, as a whole, benefits enormously. The Council has an ordinance, for instance, limiting the speed of automobiles to 12 kilometres an hour, that is to say, about 7½ miles. The ordinances also provide that the machine shall be registered and numbered. In compensation for this, however, the Council help to maintain a magnificent system of city roadways, while the Legislature holds all members of the Automobile Club of Guadalajara exempt from the State and municipal taxes on their machines. This may be regarded as a *quid pro quo* for the enterprise of the Automobile Club in improving and maintaining, at its own expense, the country roads leading into the State of Jalisco. The Governor of the State is President of the Club, and takes a lively interest in its proceedings.

The Council has a prompt and effective way of dealing with recalcitrant owners of property. The principal theatre of Guadalajara was closed by order of the Council on account of bad sanitary conditions, the owner of the building being given a limited time in which to remedy the sanitary defects. And they were remedied.

Education here, as throughout Mexico, is entirely free, and the very best curriculum that could be devised is in force. From March 1st to September 30th the school hours are from 8 a.m. to 12 noon and from 3 p.m. to 6 p.m. During the remaining months of the year the hours are from 9 a.m. to

1 p.m. and from 3 p.m. to 5 p.m. Examinations are held each year from April 15th to April 30th, the vacation season extending from the latter date to July 15th.

The number of public schools in the State exceed 650, not reckoning the several Church and private establishments. The schools last year had something like 37,000 pupils, the average daily attendance being 42,460. For the same period the number of scholars attending the religious and private schools amounted to 28,305. The Government of the State expends more than $600,000 (Mex.) or £60,000 annually upon the maintenance of its scholastic establishments, which, I may add, embrace a number devoted to higher education, such as the College of Medicine and Pharmacy, the Law School, the Lyceum and the Normal School.

The Governor of Jalisco, Colonel Miguel Ahumada, has probably done more for the whole State in general and for Guadalajara in particular, than any of his predecessors. Fortunately for Jalisco, the Governor was re-elected recently for a further period of office, his new term opening on March 1st, 1907. Colonel Ahumada was first elected Governor of Jalisco in December, 1902, immediately after he had resigned the governorship of Chihuahua. He was inaugurated for his first term of office on March 1st, 1903, and since he has assumed office he has made a good record, winning the entire confidence and esteem of the people. He takes the keenest interest in education, and it was mainly owing to his efforts that the excellent Jalisco Commercial and Industrial school for girls was established in Guadalajara.

The Governor has also given his support to the erection of a new market-building, which is costing $33,000 (Mex.), the construction being of steel and stone throughout. Indeed, there is scarcely any enterprise having for its object the improvement of living conditions in the State to which the Governor does not give his adherence.

Colonel Miguel Ahumada was for 12 years Governor of the State of Chihuahua, and under his auspices the State made rapid advances both agriculturally and industrially. His excellency is now 65 years of age, and for nearly a quarter-of-a-century has been in the Republic's service. He was born in the neighbouring State of Colima, and as a young man he

fought with considerable distinction in the war of the French intervention. In the early days of the Diaz administration, he went to Sonora, where he became identified with the Fiscal Guides, and was noted for his bravery and extremely firm handling of the roving criminals who infested that country, giving them no quarter and eventually completely exterminating the breed. It is worthy of remark that in the fiscal year 1905-6, the property transfers in the State of Jalisco under Governor Ahumada's rule, reached the value of $30,000,000 (Mex.), an increase of $10,000,000 (Mex.) compared with the preceding fiscal year.

Another zealous official is the Jefé Politico (the second highest authority of the place), among whose most recent accomplishments is a complete reorganisation of the police-force of Guadalajara. The police are enlisted upon the same terms as the military, namely, for a term of two years. Candidates must be between the ages of 21 and 55 years, and they have to pass a good physical examination and be able to read and write. Personal bonds for clothing and arms are demanded, while constant drill and instruction in accordance with military tactics are specified. The pay of the police is but $1 a day (2s.), and only the best men available are accepted.

Life in Guadalajara is extremely agreeable. The inhabitants, both native and foreign, are a genial lot, and gaiety reigns supreme. Like most Mexicans, the good people of Guadalajara are fond of dancing, and both at the American Club and the Spanish and Mexican Clubs subscription dances are much in vogue. With the several theatres, public concerts twice a week, Sunday bull-fights, the numerous libraries and various clubs, existence in Guadalajara passes along smoothly and profitably.

Presenting all the appearances of a well-to-do and prosperous city, it is but right that Guadalajara's inhabitants should share in that appearance. This they do by wearing cleaner and brighter garments than one generally sees in Mexican towns, outside of Mexico City itself. Tatters and rags, so general throughout the Republic, and which are worn by the peons apparently without any concern, are conspicuous by their absence in Guadalajara. Moreover, the male peons display a certain amount of pride and independence, unlike

that noticed in any other city which I visited. Their costumes, especially on Sundays and feast-days, are as smart as they are picturesque, and the sombreros worn are both larger and more cumbersome than the majority. One of these ponderous head-coverings which I measured exceeded 38 inches in diameter, and could not have weighed much less than 1 lb. The wearer affected a pair of lavender-coloured trousers, perfectly tight from the hips downwards, split up from the ankle to the knee and fastened around the leg by a number of large brass hooks and eyes. There was no jacket, the wearer appearing in a balloon-shaped pink cotton shirt and pink collar, but without a tie. His feet were encased in very dirty and much-worn leather sandals; and naturally he carried his indispensable blanket, locally termed a "zerapé," in this case of a bright green hue with a fringe of yellow tassels. Usually these articles are of a bright red, but the colour varies according to the taste of the particular owner.

The hundreds of parti-coloured costumes, the bright hues of the women's dresses—pale blue, pink, buttercup-yellow, mauve, crimson and white, against a perpetual background of vivid green trees and grass-plots, the brilliantly-coloured house-signs and innumerable waving national flags of red, green and white, form a kaleidoscope of moving colour remarkably pleasing to the eye. It forms a scene which, it is true, may be witnessed in almost any Mexican city or town, but more vividly and impressively here than in most.

Although there is a good mule-drawn tramway service (shortly to be converted to an electrically-operated line), Guadalajara possesses but a limited cab service. What public vehicles there are, are well-appointed and well-horsed; but there are so few of them that it is difficult to find a coach when wanted. Fortunately, the principal hotels—the Frances, the Garcia and the Cosmopolita—are located close to the station of the Central Railway and in the centre of the city, the last-named hotel adjoining the terminus. The Frances maintains a private omnibus, and earns the gratitude of its many patrons thereby.

The cost of living in Guadalajara is low. The hotel rates are from $3 to $5 (Mex.) per day (say 6s. to 10s.); provisions are from 10 per cent. to 15 per cent. lower than in Mexico

City; rents are as yet reasonable, and the public services of water, gas, and electric light are no less so. Taxation cannot be called anything but moderate, and the city receives ample return in the form of an excellent municipal government, a diligent police service, and a perfectly pure and sufficient water-supply.

Next to Mexico City, no more excellent roads exist anywhere in the Republic than in Guadalajara. Most of them are composed of asphalte, but several are of good macadam. The side-walks are mostly concrete, protected by iron hollow skirtings. There being an ample drainage and a good fall, the city is quite free from flood or defective drainage during the rainy season. If the streets are somewhat too narrow and the buildings, as a consequence, rather too close to one another, the residents derive an advantage from the abundant shade which is thus provided. Ancient Spain, and all tropical cities and towns of to-day, are built in this manner, which, however, does not find favour with Western ideas of good sanitation and convenience.

Guadalajara is particularly fortunate in the number and attractiveness of its *plazas*. The principal one is a delightful resort built after the usual Spanish-American plan, with the Government Palace occupying one side of the Square, the Cathedral another, and business buildings the other two. The middle space is thickly planted with orange-trees, semi-tropical plants, and well-laid-out flower-beds. The inevitable music-stand and numerous banks of seats are well patronised, the whole population promenading or seating themselves here of an evening and upon Sundays and feast-days. None of the flower-beds are fenced in, as with European public gardens, the people carefully abstaining from plucking the blossoms or doing any other kind of damage to the public property, of which they, indeed, constitute themselves the unpaid but no less zealous guardians.

I have always been greatly impressed with the orderly manner in which the peon class—forming by far the greater portion of the population in all the cities and towns of the Republic — conduct themselves, and the infrequency of rowdyism among them. They indulge in quiet conversations, and very little horse-play, the principal disturbing noises

Photo. Winfield Scott.

JALISCO.—Residential thoroughfare in the City of Guadalajara.

emanating from the multitude of newspaper-boys who in Guadalajara, as in Guanajuato, are allowed to exercise their powerful young lungs at all hours of the day and night unchecked.

Guadalajara, viewed from the favourable vantage-ground of the roof of the Cathedral, presents the appearance of a handsomely and regularly built city, nestling comfortably in a vivid sheet of green verdure, backed by the velvety hills, which gradually grow higher and higher as they recede into purple mountains. The spires of the 47 different churches gleam and scintillate in the sparkling sunshine, their many-coloured domes and white belfries adding fresh colour and beauty to the scene. Above all the deep blue of the sky, and below the multicoloured raiment of the people, the many green spots formed by the *plazas* and the tree-tops of the numerous patios with which the City's fine houses are provided, lend much beauty to the *coup d'œil.*

The climate is a superb one in every repect, the temperature varying but little from season to season, but nevertheless necessitating a blanket or two at night all the year round. At an elevation of some 5,000 feet above sea-level, Guadalajara possesses one of the most invigorating and delightful temperatures in the world.

A very favourite resort with all who come to Mexico as visitors, as well as with the good people of Guadalajara itself, is Chapala.

Upon the emerald shores of this Lake, at the foot of a gentle grassy slope, is the small but very comfortable cottage residence known as Ribera Castellanos. Here jaded and overworked visitors from Guanajuato, Guadalajara and Mexico City may come and enjoy a complete and delightful rest at the extremely moderate cost of $3.00 or $4.00 (say 6s. or 8s.) a day, which modest terms include a comfortable bedroom, full board, baths in the Lake, and the use of a well-furnished reception-room. The Cottage, which has at present but seventeen or eighteen rooms, is to be enlarged, I understand. It is owned by a small company in which Mr. Dwight Furness, of Guanajuato, is the principal holder ; and besides the house there is an extensive agricultural estate, with dairy and attractive gardens. Ribera Castellanos is reached by a

steam launch from Ocotlán, whence it is distant but 30 minutes, and from Chapala the run is about 5 hours across the full width of the Lake.

The sportsman can revel in a plenitude of wild duck, cranes, and occasionally wild geese and other water-fowl. The fishing, however, is poor, and strangely enough the Lake yields up little or nothing fit for the table.

The artist is fortunate in finding an ample and ever-changing field for his brush upon Lake Chapala and its neighbourhood. Here such sunrises and sunsets are to be seen as few other parts of the world can offer, and the marvel to me is that so few painters avail themselves of the unrivalled opportunities which exist here. No brush could do the beauties of Lake Chapala real justice ; but some idea of the rare colouring and unique lights and shadows might perhaps be afforded by the careful and capable student.

CHAPTER XLIV

STATE OF MEXICO: City of Toluca—Beautiful scenic surroundings—Fertility of country—Mountains—Popocatepetl and Ixtaccihuatl—Poverty unknown—Agriculture—Stock-breeding—Mining industries—Railway accommodation—Mexico City Road. STATE OF MICHOACÁN: Fauna and flora—Manufactures and mining—British capital—History of Morélos—City of Morélia—Interesting associations—Architecture. STATE OF MORÉLOS: Beautiful Cuernavaca—Sugar production—Cereals—Railway accommodation—Attractions of neighbourhood—Governor Alarcon.

IN spite of the fact that the State of Mexico comprises both the Federal Capital (Mexico City) and the State Capital (Toluca), it is not, geographically speaking, a large State, but it is fairly well-populated, and embraces within its limits the beautiful valleys of Mexico and Toluca, which are classed amongst the most fertile and productive in the Republic. As immediate neighbours it has the States of Hidalgo on the north, Tlaxcala and Puébla on the east, Morélos on the south and south-east, Guerréro on the south and south-west, and Michoacán on the west. The Federal District, which contains Mexico City, lies to the east.

Toluca, the capital city of the State of Mexico, is a delightful place of residence, somewhat reminiscent of Paris or Brussels, upon a very much smaller scale. It is, moreover, a remarkably clean and well-kept city, and the road thither from Mexico City is the one great automobile highway, being from end to end equal to anything found in England or France for smoothness and good maintenance, while its scenic attractions are infinitely more beautiful than anything which the Old World has to offer. Toluca is situated about midway between the cold and the hot country, possessing the manifold advantages of both and the drawbacks of neither. Its elevation is 8,617 feet above the sea.

Although lying somewhat higher than Mexico City (7,300 feet), the approach to Toluca is first down, then up, and then again down into the beautiful Valley of Mexico; part of that priceless possession was bestowed by King Charles V. of Spain upon the Conqueror Cortés. Fair, indeed, looks the peaceful plain into which the train or the automobile drops, as the road over the hills commences to unwind itself, like a sinuous white and green snake, just as fascinating and just as beautiful. The hills then yield pride of place to the once-dreaded but now extinct volcano of Xinantecatl, towering into the sky some 15,156 feet, as estimated by Von Humboldt, and tapering to a perfect cone, which is barely 10 feet wide at its summit.

Everywhere around is perpetual verdure, verdure of the most exquisite tints and shades of green, ranging from the deepest sage to the translucent lettuce hue, the fields and hedgerows being carpeted with flowers of every conceivable colour and tint. The lights and shadows of the sun, almost perpetually shining in this region, are influenced by the beautiful Sierras, which, indeed, are never out of sight from the moment one leaves the City of Mexico until one reaches Toluca itself.

Cloudless, clear and beautiful, the vaulted heavens look down upon the matchless charm of the plain, the mountains, in the near distance, lending a violet-hued framework to the whole exquisite setting. At eventide, their majestic summits are fretted with deep golden lights, shifting, scintillating, fading into deep and yet deeper purples, as the dying sun slowly sinks behind them, leaving, however, in his wake a rippling sea of living crimson fire—flaming pennons to announce his glorious reappearance on the morrow.

Then comes the no less beautiful night, brooding over the Valley of Toluca, balmy, soft and delicious, when "heaven's ebon vault, studded with stars unutterably bright, through which the moon's unclouded grandeur rolls, seems like a canopy which love has spread to curtain her sleeping world."

To the artist and the lover of Nature in her most sublime moments, the Toluca country is irresistible. In my memory, the journey thither, made several times and always with

Photo. by P S. Cox.

ON THE ROAD TO TOLUCA, State of Mexico.

Photo by P. S. Cox.

ON THE ROAD TO TOLUCA, State of Mexico.

renewed pleasure and the deepest impressions, lingers yet as one of the most delightful of my Mexican experiences.

It is not at all difficult to understand how the State of Mexico, with Toluca for its centre, comes to be one of the most prosperous in the Republic. It occupies one of the most fertile portions of the country, practically every square foot of ground being cultivated, and in the most intelligent manner. The actual amount of territory comprising the State is certainly not large, but it is very well populated and very favourably situated. Any description which I could give of the topography of the State of Mexico must be very inadequate. It is, however, no exaggeration to say that it occupies one of the most exquisitely beautiful positions that can be seen in any part of the world. The whole of the northern portion of the State, that adjoining Hidalgo, is a rolling grass-covered plain, intersected by a succession of low foothills and dotted with salt-lakes and rich marsh-lands, the haunts of countless aquatic birds, which afford excellent sport. Here, also, flourish the cactus and the agave in all their luxuriance and brilliant colouring. The eastern portion, adjoining Tlaxcala and Puébla, is covered by a mountain range, of which the famous Popocatepetl, 17,782 feet high, the highest in the Republic, is the crowning glory. Within a range of, say, a hundred miles, one can see Nature in almost all her different phases—forest, plain, snow-covered mountains, smoking volcanoes, fertile lands and flowing rivers.

Besides the majestic Popocatepetl, of which one obtains a superb view at most times, but at its best at sunrise, there is the hardly less beautiful Ixtaccihuatl, 16,060 feet high, and the Ajusco range, which define the border of the Valley of Mexico, the loftiest peak of which stands 13,612 feet high. To the north, again, are the Sierra de Guadalupe; while to the north-west rises the snow-topped volcano of Toluca, the celebrated Xinantecatl already mentioned, with two lakes of potable water contained within its crater. What more superb setting for so fair a picture could be found; and were not the ancient Aztecs well advised to pitch their tent within such lovely surroundings?

Practically, poverty is unknown in the peaceful Valley of Toluca, although it can be very cold here in the winter

months, the elevation, it must be remembered, being 8,617 feet above sea-level. Agriculture flourishes, cereals, leguminous plants and spices, as well as rice, coffee, sugar, linseed, tobacco and the maguey plant growing well. The average value of such produce averages $12,000,000 Mex. (say, £1,200,000) per annum, which, considering that the entire population of the State of Mexico is but 26,000, is a sufficiently good result. By far the largest crop grown is that of cereals, amounting to over $8,750,000; sugar-cane comes next, representing about $118,000; sugar-cane rum = $115,000; pulque (made from the maguey plant) = $450,000; and another by-product, also gathered from the useful maguey, and known as "tlachique," equalling $1,650,000.

Cattle-breeding is as yet only in its infancy, but nevertheless amounts to some $17,000,000 in value annually, sheep, oxen, pigs, goats, horses, asses and mules all doing uncommonly well, as anyone travelling through the district by train can easily see for himself.

The State of Mexico has yet to earn its laurels as a mining centre, many of the enterprises having so far proved disappointing. Under "Mining" fuller particulars of this industry will be found, together with a list of the principal mines at present in operation.

Probably no State in the Republic is better supplied with good roads—not by any means a characteristic of Mexico as a whole—than this. The majority are excellent, one in particular, the main road from the Capital, being unsurpassed anywhere in Europe. Railway communication is also very good, no fewer than three great lines running through the State, namely the National, the International, and the Interoceanic. Additionally, there are three other lines, which serve a small portion of the State, namely the Central, with about 66 kilometres of track, the Toluca and Tenango (30 kilometres) and the Toluca and San Juan de las Huertas (16 kilometres). The various street railways amount to little more than 40 kilometres in length, at present; but further development is contemplated. There is a fairly good service of telegraph and telephone communication, while the postal arrangements are particularly efficient.

Of industries there are quite a number, these including,

besides a brewery, famous for its particular brands all over the Republic, a bottle factory (belonging to the same company), cotton-factories, woollen-mills, brick-yards, dairy produce, such as cream, cheese and butter, pottery, and pulque manufacture. Labour for all these enterprises is so far abundant, and seems likely to remain so, since the working classes, feeling perfectly content, as, indeed, they should, with the opportunities and resources provided by their very favoured State, exhibit little of that roving disposition noticeable among the inhabitants of other States, and yield but reluctantly and rarely to the wiles of the emigration agent.

The State of Michoacán de Ocampo is recognised as one of the richest, as it is one of the most scenically-beautiful divisions of the Republic. It has for its neighbours the States of Guanajuato, Mexico, Querétaro, Guerréro, Colima and Jalisco, and within its 55,693 square kilometres of area may be found superb mountain ranges, immensely rich in vegetation, and a coast-line, generally low, measuring some 163 kilometres in extent. There are numerous excellent rivers as well as lakes, the most famous among the latter being Chapala with a superficial area of 1,580 square kilometres, one-sixth belonging to the State of Michoacán and five-sixths to the State of Jalisco. Elsewhere in this volume will be found a photograph and some fuller particulars of this beautiful lake, which is becoming more and more a favourite resort for American and other visitors to and residents in Mexico. During the earthquake visit of last April the lake underwent a curious physical change, the northern portion, which had hitherto been the deepest, rising, and the southern part, which had always been the shallowest, becoming very deep, thus indicating that the seismatic movement had been from south to north instead of, as is usually the case, from east to west.

For a considerable time a furious dispute raged between the States of Michoacán and Guerréro, dating back to 1894, when the government of Michoacán raised the question as to the ownership of territory, in virtue of the fact that it formed part of the old Province of Valladolid, and that it had also formed part of Michoacán since its organisation into a State. Guerréro, on the other hand, claimed that since its organisation,

as far back as 1849, it had exercised authority and jurisdiction within the disputed territory, and had collected taxes. In the end President Diaz had to arbitrate at the request of the Governors, and he readjusted the State boundaries, following as far as possible the natural formation of the country. The result of the decision was that Michoacán ceded to Guerréro the municipality of Zidaro and part of that of Pungarabato, while Guerréro ceded to Michoacán all the territory which she had hitherto possessed on the right-bank of the river Balsas, between that and Nexpa. The decision of the President afforded general satisfaction to both States, as most of his Excellency's wise judgments do.

Michoacán is rich both in *fauna* and *flora* of every description. Its resources are principally agricultural, its products including cereals, canary-seed, sesame and linseed; coffee, the best of which comes from the District of Uruapán, but, although very highly valued both in the Republic and abroad, it is very small in quantity; vanilla, rubber and tobacco, sugar-cane, fruits of all kinds, and a variety of cabinet woods. Its cereals may be taken to represent an annual value of some £1,600,000 ($16,000,000 Mex. Cy.), among which corn stands first, wheat, sugar-cane, alcohol, maguey, coffee and tobacco ranking in the order named. The annual valuation of agricultural products varies from £1,500,000 to £1,600,000 (equal to $15,000,000 to $16,000,000 Mex. Cy.). The live-stock value of the State is estimated at about $20,000,000 (Mex. Cy.) in the following order:—beef-cattle, sheep, horses, hogs, goats, mules and asses. The total trade of the State may be estimated at about $65,000,000 annually, which includes the product of the mines, of which I make special mention elsewhere. The manufacturing industries are confined mainly to the production of cotton and silk shawls, cotton and woollen goods, palm-hats, lace and embroideries, sugar-cane products, pulque-mescal, cheese, wax matches and beer. The Government is encouraging the culture of olive-trees and grape-vines, and hopes that something substantial may result.

English capital is interested in an undertaking which has secured from the Government of Michoacán a concession for a line to extend from the terminus of the National Railroad at Uruapán to the western border of Michoacán. The idea is

to continue the line to the Pacific port of Manzanillo, in the State of Colima, and the project has already secured a State concession for the line, which will be an extension of that of the El Oro Mining and Railway Co., whose line passes to Agangueo through Telalpujahua.

Next to the beloved Hidalgo, there is no more revered name in the Republic of Mexico than that of José Maria Morélos, after whom the city of Morélia, Michoacán, was named. He also was a priest, being curate of the town of Nucupetaro; and abandoned the crosier for the crowbar, following his rector, Hidalgo, in his fierce but futile fight against the Spanish dominion.

In July 1811, when Hidalgo had already paid the penalty of death for his patriotism, José Maria Morélos was at the height of his military glory. His campaigns were mainly conducted in the south and west of the country, and for a time his triumphs completely paralysed the Spaniards' power. His principal victories were his escape from the town of Cuantla, with some 5,500 followers, while closely besieged by the redoubtable Spanish General, Calleja, from February 19th to May 2nd, 1812; his capture of the town of Orizaba, in the State of Veracruz, in October 1812; the taking of Oaxaca on the following November 25th, and the storming and capture of Acapulco on August 20th the following year (1813).

So far did Morélos pursue his successes, that he actually succeeded in establishing a temporary "Government," called a meeting of Congress at Chilpancingo, abolished slavery, forbade the collection of tithes for religious purposes, and issued one of the many "Declarations of Independence" with which Mexico has been favoured. This was dated the "6th of November 1813."

Morélos, however, did not long enjoy his successes. General Agustin de Yturbide, at that time a Spanish officer, and loyal to his King, and who was himself destined to fall a victim to his own ambition some years later, went out against the priest-warrior and defeated him, first at Valladolid in December 1813, and again at Puruacan, on January 15th, 1814. Morélos found a refuge at Acapulco, from which place he again went out to do battle with the Spanish troops, and soon afterwards he found his Sedan at Texmalca. Treachery on the part of one of his followers proved his undoing. He was betrayed to

the royalist troops, brought to Mexico City, where he was tried and condemned by the Holy Inquisition as "an unconfessed heretic and traitor to God, the King and the Pope," and was publicly shot on December 22nd, 1815, in the 50th year of his age.

Great reverence is shown to his mortal remains, which repose in the Cathedral of Mexico City, distinguished by a handsome monument chronicling his services to the cause of the Republic which he never lived to see established. In the little town of Nucupetaro, where he formerly officiated as curate, the ornaments and priestly garments belonging to Morélos have been zealously guarded by the Indians for years. The custodian is an old man—in fact, the oldest man in the town—who is called upon to solemnly swear to keep them carefully until he dies.

It would be untrue to describe Morélia, the Capital of the State of Michoacán, as a "gay" city. It is, as a matter of fact, unusually quiet, and therefore much to be desired as a place of residence. The streets are, almost without exception, well-paved, well-drained and kept exceedingly clean. There are a considerable number of open *plazas*, and a delightful natural park known as "El Bosque," while the orderliness of the place is remarkable. The large number of trees with which the principal thoroughfares are lined lend an air of pleasant rusticity to the town, which is interesting alike for its old-world aspect, its several notable churches, and its many associations with the patriot Morélos.

Life in Morélia must pass smoothly enough, one would say, there being but little from day to day to ruffle the serenity of the place, removed as it is from the neighbourhood of political, commercial or social turmoil. The people, who number about 37,350 all told, appear to be perfectly content with their lot in life, as indeed they may be.

Few cities or towns in Mexico exhibit signs of less modernity than Morélia. It is thoroughly old and typically a Spanish Colonial city. Of the many large stone-built residences, with their heavily-railed windows, their grotesque protruding water-spouts, huge stone portals and ponderous main doorways, hardly one betrays any sign of decay. The Spaniards were undoubtedly master-builders, and in the absence of sieges,

internal revolution and other intentional damage, their edifices seem likely to endure for ever. In some thoroughfares one can see a dozen or more exteriorly handsome residences, heavily stone-carved, and with magnificently sculptured window-frames and copings. Indeed, such edifices, rented at absurdly low figures or owned entirely by people in very moderate circumstances, are the rule and not the exception. The Palacio-Municipal, for instance, is a superb example of the Spanish Colonial grandee's mansion.

At a certain time of the year, about November, after the termination of the rainy season, Morélia is visited by a plague of huge insects, locally known by the name of *cucaracha*. Their size is usually 3 inches long by 1½ inches wide, but when the wings are spread the measurements exceed 4 inches. The *cucaracha* is harmless, but alarming at first, since it flies almost blindly into one's face or eyes, striking one with extraordinary force. It is ephemeral, living but one night, and sometimes the street-pavements and roads are thick with the large, fat bodies, which are readily eaten whenever found by dogs and donkeys. I do not remember ever having seen a larger insect than this on the wing, even in Brazil, which is the home of everything that creeps and crawls, and stings and bites.

Ranking among the smaller but richer States of the Republic, Morélos, with its population of 161,000, is best known perhaps to foreigners visiting Mexico by reason of its capital Cuernavaca, formerly the favourite residence of the Emperor Maximilian and Empress Carlota, and possessing many peculiar charms of its own.

The State of Morélos adjoins the Federal District of Mexico, which is to its north, the State of Mexico surrounding it on the west, north-west and north-east. Puébla is its eastern and south-eastern neighbour, and Guerréro lies to the south and south-east. The whole area covered is little over 7,000 square kilometres, but this embraces some of the most valuable agricultural land in Mexico. Likewise within its borders are found some of the highest mountain ranges, snow-capped volcanoes, peaceful valleys and picturesque ravines. It is to the north that the mountains lie principally, here being the

lofty Sierra de Ajusco, while the no less famous peaks of Huitzilac, Tepoctlan and Santo Domingo near by rear their heads aloft. There are, however, even higher peaks than these to be met with, such as Yépac, Ololuica and Ocotecatl. The celebrated Popocatepetl and Ixtaccihuatl ranges almost form the border line between Morélos and the Federal District of Mexico.

Well-watered and possessing an abundantly-productive soil, there seems little that Nature has overlooked in this favoured district. The climate is hot in the southern and central regions, cold in the northern or mountainous portions, and temperate on the mountain slopes. Except in the northern mountains, where it is very abundant, rain is moderate throughout the country, and frosts are almost unknown. As in most other parts of the Republic, both *fauna* and *flora* are rich and varied, while the wooded portions of the country are carefully preserved from destruction by the Government. Almost every kind of produce flourishes in Morélos, the principal products being sugar-cane, rice, corn, coffee, wheat and garden vegetables. It is worthy of note that here the first sugar-plantation and sugar-mill in Mexico were established by Cortés, at a place called Tlaltenango, and since that time the culture of the cane has advanced steadily and continuously, and now forms a leading article of production of the State.

Two or three years ago Morélos produced the largest amount of sugar and molasses of any State in the Republic. The exact figures are as follows:

Sugar	30,327,452 kilograms.
Molasses	16,370,591 ,,

The State of Veracruz ranks second, with 16,950,649 kilograms of sugar and 8,480,040 kilograms of molasses; while Puébla comes third with 15,879,076 kilograms of sugar and 6,146,000 kilograms of molasses.

Labour is particularly abundant in the State of Morélos, and wages rule lower here than in the neighbouring States of Mexico and Puébla; the people, however, wear an air of peaceful contentment, and very little actual poverty exists among them.

Rice ranks next to sugar in importance, the yield being at

SENOR DON PEDRO L. RODRIGUEZ,
GOVERNOR OF HILDAGO.

SENOR GENERAL D. BERNARDO REYES,
GOVERNOR OF NUEVO LEON.

SENOR GENERAL DON MUCIO P.
MARTINEZ, GOVERNOR OF PUEBLA.

SENOR DON PEDRO ARGUELLES,
GOVERNOR OF TAMAULIPAS.

SENOR LIC ENRIQUE O. DE LA MADRID,
GOVERNOR OF COLIMA.

SENOR DON LIC EDUARDO PANKHURST,
GOVERNOR OF ZACATECAS.

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the rate of 200 kilograms for one kilogram of seed, corn yields 100 to 200 hectolitres for one hectolitre sown, while other products return adequate yields for their culture. Although the same difficulty confronts me in regard to figures as I have before referred to in reference to other States, the accompanying estimate, given to me by a prominent official in Cuernavaca, shows that the cereal production for 1902 was as follows :—

Cereals $3,200,000 (Mex.), sugar-cane (except rum) $18,800,000, representing a production of 64,791,000 kilograms; rum $2,575,000, representing 49,000 hectolitres; maguey products $26,000. Coffee-culture is making excellent progress, and there are at the present time over 5,000,000 trees planted. But little attention is given to stock-raising, and probably the total of all kinds, including beef-cattle, sheep and goats, does not much exceed a value of $2,500,000 (Mex.). Neither is there anything to be said in regard to mining, which occupies a very unimportant position among the State's industries. Although silver, galena, marble, alabaster, cinnabar, iron, gold, lead, petroleum and even coal have been found, there exists not one among them in sufficient quantity or quality which is paying.

The railway communication through the State is exceedingly good, the Interoceanic Railway traversing it from north-east to south-west and having no fewer than 7 stations in its extent of 76 kilometres. The Interoceanic carries vast freights of sugar-products, the estimate being about $3,000,000 worth per annum, including sugar, rum and molasses. The Mexican Central carries large numbers of passengers to Cuernavaca over its special Cuernavaca branch, the number of visitors from Mexico City amounting to several hundreds per week. The distance is less than 50 miles from the city, and is covered in about 4 hours. A new railway has been constructed between Cuernavaca and Toluca, while it is proposed to extend the Valley Railway to the first-named city. In this State may be found some of the best wagon roads in the Republic.

I could pleasurably linger over a description of the charming district and town of Cuernavaca, but what I should have to say in regard to it would better fit a guide book than a general

volume on Mexico. No words can do real justice to the grand scenery which is to be seen all around Cuernavaca, nor to the charming, picturesque and historically interesting town itself. In no other place have I seen such an abundance of flowers, practically every house being embowered in enormous clusters of the superb bougainvillæa, which flourishes here as nowhere else in Mexico. The cottage occupied by the unfortunate Emperor Maximilian is so completely covered by these gorgeous blossoms that none of the walls and very little of the roof are visible. It is little wonder that Cortés, the great conqueror, should have made Cuernavaca his favourite residence, when resting from his arduous labours. Nor was he the only celebrity who chose this place as a temporary residence. King Charles V. of Spain graciously bestowed upon it the title of "Villa," while here, also, was held the seat of Government of Ayutla, presided over by General Don Juan Alvarez. The Emperor Maximilian's simple home and garden are named Olindo, and the place remains almost precisely as he left it. The famous gardens of De la Borda, the Frenchman who made a huge fortune in Mexico and subsequently lost the greater part of it, are still one of the attractions of the place, although, unfortunately, they have been allowed to fall into sad neglect.

Much might be written with regard to the famous potteries of San Antonio; the interesting ruins of Xochicaclo, and of the sugar hacienda built by Cortés and bequeathed by him to the hospital of Jesus in the City of Mexico, which owns the property to this day. Two or three weeks' stay in Cuernavaca is, in my opinion, one of the most delightful experiences of a visit to Mexico. Colonel Manuel Alarcon, Governor of Morélos, is of quite humble origin, in this respect resembling the famous Benito Juarez and the distinguished President of the Republic himself. He was born in 1866, and had a hard upward fight to make before he attained recognition. He was but fifteen years old when he enlisted under Colonel Bonifacio Castello to fight the French invaders. He took part in the siege of Cuernavaca and the capture of Mexico City under General Diaz. He has commanded the Rural Guards of Morélos; was appointed Governor of the State in 1895, and has so acted since that date.

CHAPTER XLV

State of Nuevo León: City of Monterey—American enterprise—Suburbs—The *Monterey News*—Colonel Robertson as a citizen—Increase in land values—Buildings and streets—Local industries—Factories—Monterey brewery—New waterworks—Foundry—Railway facilities—Tramways—Public vehicles—Labour conditions—Population—Native riots—Agricultural resources—Mining—Iron and coal—Resources undeveloped—Governor Bernado Reyes—Sensational reports disproved.

Next to the State of Mexico ranks in importance the State of Nuevo León, occupying almost as fertile and well-watered a region as its keen business and social rival further south. The State is bounded on the north, north-west and west by Coahuila, San Luis Potosi being on the south-south-west, and beautiful Tamaulipas on the north-east, east, and south-east. The total area of this State is 61,343 square kilometres, and its population, continually being augmented, already reaches a total exceeding 350,000. The climate is variable according to altitude, the rainfall uncertain, but unpleasant winds blow at certain periods of the year from the east and north-east, which residents find very trying to their tempers and visitors endure with an intense objection. It can also be unpleasantly hot at times, and then the mosquito usually abounds.

Monterey—spelt variously with one or two r's—with a population of nearly 80,000 people, shares with Torreon the distinction of being a typically American town. Being the nearest large settlement of its size to the United States border, it is regarded as of considerable importance. In the past it has played a prominent part in Mexico's struggles, first against one foe and then against another, for the Spaniards came there as early as 1560, when they established the town of Santa Lucia, known later on as Monterey, in honour of the Viceroy Don Gaspar de Zuiñga, Count of Monterey, and the

American General Tayler advanced upon it from the Rio Grande on September 20th, 1846, captured it, and a few days afterwards won the important battle of Buena Vista, a few miles further south.

The situation of Monterey is particularly attractive, being on a small plain completely surrounded by high and verdure-clad mountains, formed in some of the most fantastic shapes, and providing a charming setting for a very pretty picture. Of the town's 70,000 to 80,000 inhabitants probably about 6.000 or 7,000, including men, women, and children, are foreigners, and mainly Americans. The German element is fairly well represented, but of British there are very few. The foreigners have built for themselves a number of outwardly-attractive houses; but the gardens are not a success owing to the continual clouds of dust which are occasioned by the sandy nature of the soil, and the intense heat which prevails throughout the greater portion of the year. But for this fact the situation would be almost ideal, and, indeed, some amends are made by the natural greenness of the mountains and country round about, the many fields of bright-coloured maize and other cereal growths, watered by abundant natural streams.

The suburbs of Santa Catarina and Topo Chico, where are some curative mineral springs, would likewise be delightful—and in the summer-time when rain falls plentifully are delightful—but for the dust which lies inches deep upon the roads. As soon as these are macadamised, which the enterprising Americans are certain to undertake sooner or later, and the outskirts of the town are as comfortable in this respect as the principal streets are already, Monterey will form one of the most pleasant residential towns in Mexico.

The present prosperity of Monterey is due in a great measure to Colonel Joseph Andrew Robertson, who may be aptly called the "Father of Monterey," as his grandfather, Mr. James Robertson, was termed the "Father of Tennessee," nearly a hundred years ago. It is to his initiative and practical help that almost every public and private enterprise in the town has been undertaken, and while he has not enriched himself to any considerable extent, he has succeeded in bringing wealth and prosperity to a great many others.

The brewery, the electric-light works, the brick-fields, the foundry and the iron smelters are the outcome of Colonel Robertson's enterprise, and all are to-day in a very flourishing condition. He himself owns the brick factory, in which $1,000,000 (say £100,000) are invested, and the only daily papers published in the State of Nuevo León, the *Monterey News*, one edition in English and one in Spanish. Of these he is sole proprietor, having no partners in any of his enterprises, a policy which he has pursued all his life.

The value of landed property in Monterey has advanced sensationally of late years. Thus, a plot which eighteen years ago was purchased for $9,000, and during that period brought in some 45,000 dollars rental, was sold a few months ago for $300,000. House property until lately was one of the most stable of investments, continually improving in value, while new and handsome buildings, both residential and for business purposes, were being constructed both in the town itself and outside it.

There are two cement factories already erected here, one making Portland cement, and situated at Hidalgo, some 37 kilometres distant. Here limestone and marl (clay) exist in great abundance. The amount of cement turned out is valued at $500,000 (say £50,000) annually in the one case, and $250,000 (£25,000) in the other. When these two factories are in full working order (the smaller one only commenced to run last December), they will probably be enabled to supply the demands of the whole Republic, and thus abolish one more article of import, which will mean a heavy loss to German and British cement manufacturers.

Hustle and push being characteristics of the enterprising American, and Monterey being as much his as it is the Mexicans', it is not surprising to find the town going ahead much faster probably than any other—Mexico City excepted—in the Republic. Up till late months Monterey, it must be admitted, has stood in some need of improvement, for it has been deficient in many things which go to make living comfortable and sanitary. The town has lacked good drainage, an ample and good water-supply, decent pavements, a satisfactory telephone system and comfortable hotels. One by one these have been provided, improved, or entirely remodelled,

with the result that Monterey to-day is commendably different to the Monterey of only two or three years ago.

The centre of the business portion of the town has recently been repaved, and a great improvement in the appearance of the streets, to say nothing of the increased comfort to the pedestrians, is apparent. Gradually the roads leading to the outskirts of the town will be taken in hand, and not before they need it.

The water-supply above referred to, and for which the town of Monterey has long been yearning, is now *un fait accompli*. A fine permanent pump-house has been constructed at San Geronimo, and practically every house in the town now enjoys an unlimited water-supply. The work of laying the pipes has been extremely well done, and the work put in generally of a thoroughly sound and permanent character.

The making of hats is a long-established and very profitable industry in Monterey, the business having now attained very considerable importance, the principal foreign customer being the United States of America. The hats mainly are made of straw, and although grotesque to a degree when worn by any but Mexicans, they seem to be popular just now among some Americans, who wear them for farming or other outdoor work. In Europe anyone appearing in public in a typical high-crowned Mexican hat would probably be "guyed," and regarded as an eccentric individual needing police protection. Nature never intended the pale-faced, square-jawed Anglo-Saxon to wear this head-gear, and I do not believe that, except among that large class who revel in fads and monstrosities, in the shape of garments as well as in food and pictures, Mexican hats will ever become an established form of head-dress.

A sausage and kraut factory has of late been established in this town, the whole of the necessary capital having been found locally. The enterprise is that of some wealthy stock-keepers, who, in view of the "meat scandals" which last year convulsed the whole of the carnivorous portion of the world's population, thought the time propitious to establish a canning industry locally, the first, I believe, in Mexico. Some $75,000 gold (say £15,000) has been laid out already, and as much more is available if necessary.

A new Portland cement factory has recently been constructed by Señor Francisco Beldeon, the capacity of the plant being about 200 barrels per day. There are also plants belonging to Señor Vincente Ferrari, Manager of the Monterey Steel Works, producing from 200 to 300 barrels per day, while the Dublan Cement Works, which were reconstructed about 18 months ago, and fitted with entirely new machinery, find it difficult to satisfy all their orders. As the greater part of the American surplus of the cement factories is now going to Panama for use on the Canal works, the State of Nuevo León would have been in a bad way for the article but for its local factories.

The Monterey Mining, Smelting and Refining Co. carries on an extensive business, and pays 7 per cent. regularly. A recently-constructed corset and ladies' underwear factory has started business, and is doing well. The Monterey Iron and Steel Foundry is one of the most successful corporations in Mexico; its $100 shares stand at $115. Over $10,000,000 have been expended upon the plant, to which another $2,000,000 have recently been added in the construction of additional departments. The foundry is running at its full capacity, and turns out rails, beams and other construction material. The blast furnace has a capacity of 350 tons of commercial iron every day. The Company also owns iron and coal mines. Its capital is $10,000,000 (Mex.) in shares of $100 each, fully paid. A packing-house was established at the end of last year by Government concession, the capital being $100,000. The Monterey brewery, known as the "Cuauhtemoc," is a very flourishing concern, with an imposing red brick and stone building which would do credit to any city; its beers go all over the Republic, and have taken prizes at many exhibitions in the U.S.A. and in Europe. The Company has recently erected a four-storey building with several vats of 1,000 barrels capacity, in each of which beer will be allowed to age thoroughly.

In regard to railway communication the State of Nuevo León is very well placed; the Mexican National Railroad crosses it from west to north-east, having 31 stations in its course of 280 kilometres. A new passenger-station has

recently been erected at Monterey, and is one of the handsomest to be found in the Republic. It is a fit mate for the handsome station belonging to the Mexican Central Railroad, which is constructed of white stone, whereas the National station is of stone and brick. The Monterey and Gulf of Mexico road crosses the city from west to south on its way to the State of Tamaulipas. A branch of the National from Matamoros to Monterey is practically completed, while a small electric line from Monterey to Topo Chico is also ready for operation. Here a large hotel is to be erected by one of the Monterey hotel proprietors. There are about 20 kilometres of tramways, all starting from Monterey, and many fine wagon roads leading in all directions. A new potosamite factory is being erected near Topo Chico, the whole of the necessary capital having been subscribed locally. A candle factory has recently been commenced, with a capital of $100,000, while a carriage and harness factory, for which a State concession has been granted, has been established, the capital being $100,000, the raw material, for the most part, coming from the U.S.A.

The condition of labour in Nuevo León, as throughout the Republic, is in an extremely unsatisfactory condition, the demand for able-bodied workmen being far in excess of the supply. So much new building is going on in all directions that several thousand additional workmen could readily find employment if they were forthcoming; while railroads are also in need of additional men, and offer good wages. The building contractors of the State are seriously affected in some directions for lack of workmen, labour never being so scarce as it is at present. Throughout Monterey, placards and signs may continually be encountered, stating that mechanics in the building-trade are urgently needed, and offering every inducement to applicants.

Although several respectable fortunes have in the past been made by landowners in and around Monterey, the general condition of real-estate in that city to-day is unsatisfactory, and trade in all classes of land has been somewhat spasmodic and erratic and on a limited scale. This is said to be due to the fact that the real-estate market is hedged around with numerous difficulties, which naturally tend to

discourage transactions of any magnitude. This has, no doubt, been in a great measure due to the lack of drainage and water, which, as I have stated, has now to some extent been remedied, and in all probability land values will go up steadily until they attain something like the dimensions that rule in Mexico City. It may be expected that remote sections will decrease in value, for business purposes, although they will advance from a residential point of view, so that things will be equalised, and, on the whole, real-estate may receive an impetus.

Monterey resembles many other old cities in regard to wealth and poverty being found in close juxtaposition; to-day many a handsome mansion is located next to a wretched adobe hovel, but it may be expected that the squalid residences will be destroyed or deserted as the rates are increased. Another reason conducive to their discontinuance will be found in the fact that the Municipal authorities will pass laws that all householders within a certain radius shall equip their houses with certain sanitary facilities, an expense which few, if any, of the hovel-owners could meet.

The State of Nuevo León has in the past earned some unenviable distinction by reason of the popular riots which have taken place there; and on one occasion when the Government found it necessary to impose certain restrictions on account of an outbreak of fever, something like a general insurrection occurred, and troops had to be called out. On the whole, however, the State is kept well-in-hand, and the criminal statistics, which have been placed at my service, show that while the Courts have been called upon to dispose of a large number of cases, none of them have been very serious. For one month, namely that of June last, there were tried and sentenced 42 cases in all, of which 2 were for homicide, 17 for inflicting injuries, 6 for robbery, 3 for rape, 1 for adultery, 3 for robbery and fraud, 1 for slander, 3 for assault, and 1 for forgery. At that time there also remained pending 117 cases, of which 10 were for homicide, 79 for inflicting injuries, 21 for robbery, 1 for rape, 2 for adultery, 3 for fraud and 1 for breach of trust. Considering that the entire population of Nuevo León is 350,000, and that the above-mentioned criminals had been sent to Monterey from all

parts of the State for trial, the return is not so serious as it might appear.

The general trade of the State is in a very healthy condition, agriculture being the main industry outside the City of Monterey. The latest statistics at my disposal show the following production :—

Cereals, $2,216,000 (Mex.).
Sugar-cane products (rum excepted), 8,559,000 kilos, valued at $1,880,000 (Mex.).
Rum, $72,500.
Maguey products, $28,000 (Mex.).
Ixtle, $68,000 (Mex.).

The total value of the live stock in the estimate is $12,000,000 (Mex.), including goats, sheep, beef-cattle, horses, hogs, asses, and mules. A great part of the shipment of cattle takes place to Texas and some of the Mexican States, which also take much of the agricultural produce and some small quantities of cotton and woollen-goods. The State's mercantile movement may be estimated at $30,000,000 (Mex.) per annum, and the imports include clothing, textile-fabrics, hardware, paper, wines and liquors, coffee, tea, machinery, implements, arms, etc., estimated at a value of about $16,000,000 (Mex.) per annum. Owing to its close proximity to the United States border, the State naturally obtains most of its supplies from there; but latterly, I am glad to say, British trade has met with some recognition. For instance, the whole of the new waterworks and drainage pipes have been supplied by a Glasgow firm, in severe competition, moreover, with both German and American houses. The greatest satisfaction has been expressed by the Directors, both in regard to the quality of the pipes supplied and the promptitude with which they were delivered.

Of recent months, heavy imports have been received from Europe generally into Monterey viâ Tampico; these comprise almost exclusively hardware fabrics, canned delicacies, wines and liquors.

In regard to mining the State is making rapid headway, although comparatively but little attention has been paid to this industry. The number of registered claims to-day probably scarcely exceed 600, covering an area of less than

10,000 hectares. In point of actual value, the mining wealth does not exceed $5,000,000 annually. Several leading financiers of Monterey are interested in mining, and no doubt in time they will have opened up what at present is only "prospect"—but good prospect—ground. La Alianza mine is owned by some Mexican gentlemen of Monterey, and Mr. Donald R. Morgan, a well-known American engineer of the city, has recently undertaken the management of the Manilias mines, and formed a company to finance them. These are silver and lead mines, while that of the Compañia La Cobriza are copper. Iron, lead, coal, sulphur and marble exist in fairly good quantities, but up till now Nuevo León has failed as a gold-producing State.

The iron and coal resources of Nuevo León have been pronounced by experts as practically "inexhaustible," and I believe that they are. In every mine that has been opened as yet iron has been found in connection with silver and lead, while I have seen immense lumps of ore lying about on the tops and sides of the mountains and outcrops in the gullies and ravines. Perhaps the longest body of ore is that in the vicinity of Minas Viejas, which are located on the top of the mountains lying immediately north of Villaldama.

General Bernardo Reyes, the Governor of the State of Nuevo León, was formerly Minister of War and Navy, and a member of President Diaz' Cabinet. He is a fine specimen of his race, handsome, courtly and upright. As a soldier he has frequently distinguished himself—in Sinaloa, in Zacatecas, in Jalisco—at times of revolution. When President Lerdo de Tejada was deposed in 1876, forces under Reyes—then Lieutenant-Colonel—revolted and deserted him. He at once reported himself to General Porfirio Diaz as a prisoner, but that discerning soldier recognising a brave and patriotic brother-in-arms appointed him commander of the Sixth Regiment of Cavalry, an organisation celebrated then as it is to-day for distinctive gallantry. For several years afterwards Reyes conducted an active and successful crusade against revolutionists, and was himself seriously wounded upon more than one occasion. Towards the beginning of this year some sensational statements appeared in the cheap New York press imputing ambitious and disloyal sentiments to General Reyes,

which he immediately and emphatically denounced as base calumnies—as they undoubtedly were. There is no more loyal adherent to the existing order of things than this high-minded soldier, and his name in Nuevo León is regarded with positive affection, as indeed it may be said to be throughout the rank and file of the whole Mexican Army. General Reyes is 57 years of age, having been born in Guadalajara in the year 1850.

CHAPTER XLVI

State of Oaxaca: Scenic surroundings—Trades and industries—Climatic conditions—Port of Salina Cruz—Agriculture and mining—Valley of the Tehuantepec—City of Tehuantepec—City of Oaxaca—Railway communications—Benito Juaréz' and Porfirio Diaz' birthplace—Historical buildings—Improvements in the city—Some famous churches—A notable prelate—His influence and distinguished ecclesiastical career.

Not only does Oaxaca de Juaréz rank as one of the largest of the States of the Republic, but it is certainly one of the richest of them, its boundaries being the States of Puébla and Veracruz on the north, Veracruz and Chiapas on the north-east and east, Chiapas and the Pacific ocean on the south, and Guerréro on the west and north-west. The total area of the State is 91,664 square kilometres, and the population is not very far short of 1,000,000. It would be difficult to do anything like justice to the scenic beauty and fertility of the regions occupied by Oaxaca. Within its borders, mountain, valley, river and stream are found in their most entrancing aspect, and one might travel the world over without encountering anything more peaceful and prosperous than the valleys of Nochitlán and Mixteco, both of which are nearly 2,000 metres above sea-level. In order to appreciate the majestic grandeur of the Sierra Madre mountains, which cross the whole State, it is necessary to take the railway journey from the City of Puébla to the City of Oaxaca, a description of which will be found under Chapter XXXI., dealing with the Mexican Southern Railway. Two of the most prominent peaks which are seen on this memorable trip are Zempoaltepec, 3,397 metres, and San Felipe del Agua, 3,125 metres above sea-level. Another valley of surpassing beauty and fertility is that of Oaxaca (or Antequera), which occupies the greater part of the central region of this State.

Being one of the maritime States of Mexico, Oaxaca has always been regarded as of great importance, and from the days of Cortés a large portion of the country's trade has come through the ports in this State. The principal among them is, of course, that of Salina Cruz, which is now the terminus of the Tehuantepec Railway on the Pacific side, that of the Gulf side being Coatzacoalcos. Chacahua, Puerto Escondido, Puerto Angel, San Augustin, Huatules, San Diego and La Ventosa, are all ports of consequence, Puerto Angel being the most sheltered and having the deepest water, but, unfortunately, its entrance is too narrow to allow of the passage of large vessels. Whereas the above-mentioned are open to foreign and coast-wise traffic, there are additionally an immense number of bays, roads and small islands, all of which have some value. No State is better watered than that of Oaxaca, some of the finest rivers of the Republic coursing through its territory. There is, for instance, the Tehuantepec river, which, with its numerous tributaries, travels an extent of 294 kilometres, while the Arena, the Tonameca and the Copalita are rivers of considerable consequence. The principal lakes among a large number are the Superior and the Inferior, both situated on the isthmus of Tehuantepec, and Alotengo and Chacahua which communicate with the Pacific Ocean.

While on the sea coast, and especially at Salina Cruz, the climate is found always hot and sometimes unhealthy, in the valleys of Oaxaca no climate can be deemed more delightful. In the higher altitudes, and throughout almost the entire region of Mixteca Alta, the temperature is even cold. Rain is usually moderate throughout the State, and frosts are very seldom encountered. On occasions, however, the rains can be found very detrimental to the interests of the State, and great damage is done to the roads. I have known practically every road throughout the rich mining districts to be completely washed-out, and locomotion rendered impossible for days together. In the month of July 1906 this occurred, but it was said to be an exceptionally bad season.

It is remarkable that in such a delightful climate as the greater part of Oaxaca offers, fevers and affections of the digestive organs should prevail; but such is the fact, while

Photo. by Winfield Scott.

MICHOACÁN.—Governmental Palace in the City of Morélia.—*see p.* 76.

OAXACA.—Institute of Science and Art, City of Oaxaca.

See p. 95.]

yellow fever, at one time the scourge of Salina Cruz, still exists, although nothing in proportion to what it was in former days, before Salina Cruz was entirely rebuilt and endowed with a sanitary sytem.

The resources of this State are numerous, but the two principal industries are agriculture and mining. Of such importance are both of these, that it is difficult to say which ought to take a precedence in description. In the rich valley lands of Oaxaca every kind of produce can be raised, and no where can finer cereals or sugar be grown. Last year cereals exceeding $8,500,000 (Mex.) and sugar-cane products (direct) valued at $1,400,000 (Mex.) were raised, other produce being rum $1,321,000 (Mex.), maguey products $250,000, textile fibres $112,000, coffee $501,000, and tobacco $70,000. The yearly agricultural production of the State may be estimated roughly at between $15,000,000 and $16,000,000 (Mex.), while stock raising represents a value of nearly $4,000,000 (Mex.), the leading species being goats, sheep, beef-cattle, hogs and horses.

Besides agriculture and mining (the latter being treated under a separate chapter) Oaxaca does a considerable trade with its maguey fibre which is called "pita de Oaxaca," as well as in woollen and cotton fabrics, furniture, pottery, candles, soap, matches, chocolate and tobacco. With the neighbouring States of Veracruz, Puébla, and Chiapas, the State maintains a valuable inter-trade, sending out coffee, hides, cochineal, flour, sugar, minerals, indigo, oils and tobacco, and receiving in exchange over 200 different articles, which include those from abroad, such as machinery, agricultural-implements, hardware, canned-goods, beer, wines and liquors, cotton and silken goods, etc. Taking all in all, the State's trade amounts to between $17,000,000 and $18,000,000 (Mex.) annually, and this is being fastly increased.

Unfortunately the State is not served with railway communication as well as it should have been had the spirit of progress been as pronounced 15 or 20 years ago as it is to-day, when, unfortunately, the same favourable circumstances no longer exist. The Mexican Southern Railroad, as I have stated, runs from the City of Puébla, in the State of that name, to Oaxaca City; had the Southern Co., a British

concern, had sufficient capital on hand, doubtless, before now the line would have been extended to the Pacific coast. Gradually the track is crawling towards that destination; but not under these auspices; and in any event it must be many years yet before a direct line from the northern States of the Republic runs to the extreme south. The Tehuantepec Railway, of which I speak more fully on p. 284, Vol. I., runs from Salina Cruz on the Pacific, in the State of Oaxaca, to Coatzacoalcos on the Gulf of Mexico, in the State of Veracruz, a distance of 190 miles (about 304 kilometres).

The city of Oaxaca is typically Spanish in appearance, but although full of interest to the average traveller, it is as yet somewhat deficient in some advantages and conveniences. Many buildings are extremely handsome and commodious externally, but not very comfortable inside. The streets are for the greater part paved with cobble-stones, which render travelling in any kind of vehicle one long mental penalty not unaccompanied by physical agony, the majority of people preferring to walk rather than be jolted over the stones, which are both badly laid and mostly out of place. Open ditches run through many of the streets, the roadbeds of which are concave instead of level. A new sewerage system is promised, but it will be probably a considerable time before it is carried out.

Even the electric light system, which has recently been introduced, is both poor and inadequate, and a source of continual complaint by the inhabitants. The tramway system is mule-drawn, and, therefore, inefficient; but the cars are clean and the fares moderate. In regard to telegraph, telephone, and postal service, the State has lately much improved.

While the steam navigation along the coast, which is carried on by the Pacific Mail Steam Co., Hamburg-American Line and the Mexican Line, has up till recently been irregular and unsatisfactory, things promise to improve at no distant date. Since the opening of Salina Cruz as a port, the Hamburg-American Line, for instance, has improved its service somewhat, while the Hawaiian-American Line now runs regular services in connection with the Tehuantepec Railway. The finances of the State are in fairly good condition, while taxation is moderate. The heaviest expenditure which the State

Government incurs is in connection with education, and no fault can be found with that. The existing schools are well conducted, and new educational establishments, under excellent management, are being added.

It is worthy of note that both Benito Juaréz and Porfirio Diaz, the two most celebrated of the Presidents of the Republic of Mexico, were born in the City of Oaxaca, both being of pure blood. The house in which Juaréz was born is now used as a Museum, and possesses several photos and other objects connected with the life of the illustrious Oaxacaquenan. The house, which is "No. 37 Fifth Hidalgo Street," has a bronze tablet affixed, setting forth the glorious services rendered by Juaréz to the Republic, and the Constitution of September 15th, 1857, which he gave to it. The house in which Porfirio Diaz was born has now, unfortunately, been pulled down, and a school building, known as the "Escuela Porfirio Diaz," erected on the site. The exact population in 1906 (the last local census taken) was 982,030 inhabitants.

After some years of inactivity, explorations are again proceeding at the ruins of Mitla, one of the largest tombs being excavated from beneath, the ground having given out hollow sounds when tested. I am also glad to say that the authorities have at last rescued from its ignoble use as a stable one of the finest portions of the ruins, a piece of vandalism which I was astonished to see being perpetrated at the time of my visit. Monte Alban, some little distance from Oaxaca City, is also being once again explored and excavated.

Dr. Salaguren, of Oaxaca City, who possessed what is undoubtedly the most complete and valuable collection of Aztec and Toltec heathen deities and other relics, has lately sold it to the National Museum of Mexico City for the sum of $40,000 (£4,000), and this may certainly be regarded as an acquisition of unique value. It has taken many long years of patient waiting and the outlay of no inconsiderable sum of money to amass this collection, which is *sui generis*.

In Oaxaca City several important improvements have been effected during the past few months. A new and handsome theatre has been commenced, is now well advanced in construction, and will be ready for occupation some time in May or June next. The Crisantema Club will occupy some of the

many handsome apartments which are to be provided, this being a highly successful and ultra-fashionable dancing and recreation côterie, while the Oaxaca Club, another social organisation, has been invited to make its headquarters at the same place, but may prefer to find larger accommodation elsewhere.

The Cathedral at Oaxaca City has been entirely renovated and in some parts almost rebuilt by the munificence of the Archbishop, Dr. E. Gillow, who has already expended a modest fortune upon the reconstruction and renovation of other of the city's churches. The newly-decorated fane was reopened to public worship (it was never entirely closed even during the alterations going on), and reflects infinite credit upon the perfect taste as well as the great liberality of the prelate. The church now contains some modern works of real art and merit, mainly from Italy. A magnificent bronze high altar, with heroic figures and two life-sized figures of saints, have been added, and are deemed equal to anything of the kind to be found in Rome or Florence.

The Archbishop of Oaxaca, who has done so much for the churches in his diocese, is a very cultured and charming man. Born in Puébla in 1841, he is the son of an Englishman, Mr. Thomas Gillow and the Marquise de Selva Nevada. In 1851 he was in England, and a pupil at Stoneyhurst College, where he distinguished himself in Latin, Greek and French literature. At the instigation of the Pope, Pius IX., young Gillow entered the Ecclesiastical Academy for Nobles in Rome, following which he passed four years in the Gregorian University. It was the same fervid, brilliant young priest who delivered a striking lecture at the Convocation of the Vatican Council upon the "Infallibity of the Pope," at which his Holiness and the whole Pontifical Court were present. Young Gillow became Theological Counsel to the Bishop (Dr. Marquez) of Oaxaca, and, returning to Mexico, he succeeded the bishop in the see on his death, and was shortly afterwards raised to the rank of Archbishop. His Grace has been twenty years in the same diocese, and is much venerated by the whole nation for his benefactions and lovable nature.

CHAPTER XLVII

STATE OF PUÉBLA: Rich agricultural country—Cotton industry and mills—Mining—Railway communication—Churches—City of Puébla—Interesting history. TERRITORY OF QUINTANA-ROO: Immigration inducements—Unsettled conditions—Natural resources. STATE OF QUERÉTARO: Fertility and climate—Agriculture and trade—Cattle-raising—Mining—City of Querétaro—Maximilian associations—Churches and public buildings.

WITH the exception of the Federal District of Mexico City and the States of Tlaxcala, Mexico and Guanajuato, Puébla is the most densely-populated of all the Republic's States. Its area of 31,616 square kilometres carries a population of 1,021,133, which would give 32.29 to the square kilometre. Likewise, it is one of the richest of the producing States, and from a topographical point of view cannot be excelled in the beauty of its mountains or the fertility and productiveness of its soil, and generally in the contented and prosperous condition of its people.

The leading industry is that of agriculture, and among its products are cereals, sugar-cane, coffee, vanilla, and delicious fruits of every description. In travelling through the State of Puébla one is impressed with the extensiveness and richness of the plantations, of which there are close upon 500, owned and worked by some of the wealthiest residents in the Republic. Out of these 500 plantations, some 330 are devoted almost exclusively to cereals, 70 to sugar-cane, 30 to maguey pulque, 15 to coffee, 8 to tobacco, and the remainder to cattle-raising.

The plains of San Juan de los Llanos, Chalchicomula, Tecamachalco, Tepeaca and Tepeji, as well as the valleys of Texuclucán, Atlixco and Puébla, are among the most productive in the State, and it is not surprising to find the price of

agricultural land ruling very high. In all these districts an abundance of water is found, the principal rivers being the Atoyac and its numerous tributaries, the Vinasco, the Pantepec, the Cazones, the Zempoala and the Necaxa, the latter forming, in the district of Huachinango, a beautiful cascade, 162 metres high, which is utilised by the Mexican Light and Power Co., Ltd., for their electric cables, which traverse a distance of over 100 miles to Mexico City. Four magnificent lakes, named Quecholac, Tlachichica, Tepehuayo and Epatlán, afford both sport, pleasure and irrigation-power.

In no part of the State can the climate be considered unpleasant, although it varies considerably, being temperate on the plains, hot in the south and moderately cold in the northern districts. Where Nature has been so lavish in her bestowals, it may be readily understood that both *flora* and *fauna* are extremely rich. Although agriculture, as I have observed, is the principal industry in point of actual monetary value, Puébla is famous for its cotton factories, the manufactured articles going all over the Republic, and being very highly esteemed by the purchasers. It is, however, rather in cotton weaving and spinning than in cotton cultivation that Puébla has distinguished itself, the Atlixco factory being among the most celebrated in Mexico.

As a matter of fact the State of Puébla stands first in regard to the number of its cotton-factories and the number of pieces woven or printed, but it gives place of precedence to other of the States, such as the Federal District, Guanajuato and Mexico, in regard to the amount of yarn turned out. There are, to-day, some 29 working mills in Puébla, out of a total of 34, 5 being idle. The amount of cotton consumed is close upon 7,860,000 kilos, including pieces woven or printed, these amounting to 1,933,088 ; yarn to the extent of 11,926 kilos being also included. The annual declared sales of both are in nett value $13,497,342 (Mex.). The factories employ 176,846 spindles and 6,112 looms, as well as 4 printing-machines. The number of hands employed is 6,560, almost double that of the next nearest, namely the Distrito Federal, which employs 3,624 hands.

Mining in Puébla includes gold, silver, copper and marble, the latter existing in large quantities and being of a specially

fine character. Although the number of mining claims has not materially increased of late, very few have been abandoned, which at least speaks well for the continuance of the "finds," and proves that Puébla, as a true mining centre, is likely to take a prominent place before long. There are at present some 160 mining claims registered, covering 2,000 hectares. Naturally many of these claims are only in the prospect stage, and the number of actual producing mines does not exceed 15 or 16, and the total value of the output is about $600,000 (Mex.).

One of the most recent industries to be established in Puébla is that of quarrying of onyx, for which a very large demand exists in the United States of America. Users of the material, however, complain strongly of the inability to obtain supplies which are up to sample, and an instance was given to me by one contractor who, from a sample, ordered a considerable supply for use in the U.S.A. He declared to me that when he received the consignment, every piece of onyx was different in colour from what he had ordered, not one of the blocks resembling the sample. I suppose that this can scarcely be avoided, and, to many, the varieties in colour are the greatest attraction. The price of the onyx at the quarries at Puébla averages about $300 Mex. (£30) per cubic metre. Delivered at the railway stations in block, it varies from $350 to $400 (Mex.), according to the distance from the quarries, and the consequent transportation charges. It seems, moreover, that the owners of Puébla onyx are not very keen on business with the United States, and are quite contented to confine their orders to local demands, which are very considerable.

In point of railway communication the State of Puébla is exceptionally well-provided. From Mexico City, the City of Puébla is reached by two alternate lines, the Mexican and the Interoceanic, while the Southern Railway has its headquarters there. The situation of the City of Puébla, being as it is upon a vast open plain, has afforded the native architects opportunity of doing full justice to their creations, and certainly there is no city in the Republic which can boast of more numerous and handsome buildings. It has been and still is termed the "City of the Angels," but whether

in reference to the moral character of its inhabitants or the number of churches dedicated to the worship of the Deity, it is impossible to say. At least churches are to be seen everywhere; and looking down upon the City from an eminence, their gilded domes, their walls and their towers attract notice in every direction. Practically each church has its dome, either gilt or covered with bright-hued china tiles, San Augustine's being white, San José red, Santa Domingo red and white, Concepcion brown, Santa Térésa yellow, San Cristobal blue, etc., etc., while the majestic cathedral, which occupies practically the centre of the city, is entirely of brownish-grey, the lofty towers being observable for nearly 20 miles distant.

The cathedral cost a million and a half dollars, and has been described as the most beautiful ecclesiastical building in the world; but as I have seen both Burgos, Cadiz, Toledo and Seville cathedrals, I venture to differ from that criticism. Nevertheless, I am prepared to confess that the interior of the Puébla edifice is the work of a master, the north transept in particular being a splendid architectural composition, the work of the famous Juan de Hærrera. The pulpit and the font are of choice onyx, from the now extinct Tecali quarries. Modern architects say that the west front of the Cathedral is entirely unworthy of the two majestic towers which flank it, or of the magnificently proportioned and constructed interior. But all agree that as a whole it is a superb creation.

To attempt to describe the beauties of Puébla City would necessitate a special volume. I would willingly linger over my recollections of this gem of a City, but unfortunately space forbids. For a full description of its magnificent churches, its pictures, its statuary, its carvings, its public buildings and its libraries, I must refer my readers to any one of the numerous text-books which have been published concerning it, but none of which can do justice to the theme. Unquestionably fair is the City of Puébla, only 25 miles distant from the superb snow-crested volcanoes Popocatapetl and Ixtaccihuatl, glistening in the ever-present sunshine and embowered in perpetual green surroundings. Rugged Malintzi, 13,000 feet in height, grand old Orizaba, only a few hundred feet less, and other peaks of note can be discerned from Puébla. The city is considered the key to the national Capital from a

Photo. by C. B. Waite.

THE CITY OF PUÉBLA, showing the extinct volcano of Ixtaccihuatl

military point of view, and during the several foreign wars it has changed hands several times.

Neither is the history of Puébla any less interesting. It is a particularly stormy one, the City having passed through many bitter vicissitudes of war, and perhaps, next to Mexico City itself, has suffered the most of any in the Republic. On August 2nd, 1821, it was captured by Augustin Yturbide, afterwards Emperor of Mexico. On May 25th, 1847, it was occupied by the U.S. General Scott; on May 5th, 1862, it was the scene of Zaragoza's victory; it was reoccupied by the French on May 17th, 1863, and four years later, April 2nd, 1867, it was retaken by General Porfirio Diaz.

It is only, comparatively speaking, within the last few months, that the last traces of the ravages caused by these continual attacks have been obliterated; but even yet, upon some of the less pretentious buildings, the marks of French, American and Mexican bullets may be seen. A vast amount of wealth is still concentrated in Puébla, principally in connection with its costly churches, and more especially the Cathedral, which is some 300 years old.

The principal public buildings in the City of Puébla include the old Alhóndiga, where the legislative sessions are held; the Law Courts; the Penitentiary, which is considered one of the finest in the Republic; the State College, also a stately building, and an altogether admirably conducted institution; the Public Library, containing 40,000 volumes; the Normal School; the Academy of Fine Arts, and several hospitals. The streets of the City are wide and are kept scrupulously clean, the centres sloping slightly to the curb on either side, while a continuous stream of water flows through them for sanitary purposes. There are numerous parks and *plazas* maintained with great care, the trees, flowers and fountains bearing the appearance of intelligent attention on the part of the authorities.

General Mucio P. Martinez, Governor of the State of Puébla, is one of the most distinguished soldiers in the Republic, and an intimate friend of the President. General Martinez takes the keenest interest in education and the general welfare of the State, and is highly esteemed by all sections of the community.

Quintana-Roo is one of the three territories of the United States of Mexico, and has, in its time, given a great deal of trouble to the Federal Government, but nowadays the local conditions are of a decidedly more pacific, but still not wholly settled, character, and the country is attracting a fair proportion of foreign capital. The Territory of Quintana-Roo was created by the Act of December 14th, 1900, and, by the Act of February 25th, 1904, its political and municipal organisation was established. There can be no doubt that it is eminently adapted to agriculture, the soil being more fertile than the arid plains of its neighbour, Yucatán, which is mainly suitable to the henequén plant. Of recent months a Yucatán henequén Company has also purchased a large quantity of maguey shoots, with the intention of planting them in Quintana-Roo.

The Mexican Federal Government is offering every inducement for immigration into this territory, and one American company, of which I have heard, has just been formed with a capital of $1,000,000 (Mex.), for the purpose of working a large tract of land which it has acquired. The concession, which has been acquired from Señor Alberto Terrazas, covers a region of 556 square miles, and embraces 350,000 acres of timber lands, rich in chicle, cedar, dye-woods and mahogany. At present the property is absolutely virgin-forest, hardly a tree having been been felled, owing to the continuous trouble with the Maya Indians, who have only recently been suppressed.

So little is known of this region, and travelling, where at all possible, is still conducted with so much difficulty, that I am unable to give any further details of Quintana-Roo's trade opportunities or mineral possibilities. It will probably be some quarter of a century hence before the place can be regarded as a suitable one for any but the most hardened and experienced settlers—men who must be prepared to face the greatest hardships, and possibly encounter the hostile attacks of the small bands of the wandering Indians who still exist. In spite of this fact, however, Quintana-Roo will gradually evolve from a state of backwardness, and telephonic and telegraphic services, as well as public schools buildings and a military railway, are gradually being supplied. It is the policy of the Mexican Government to allow no part

of the country to remain in a position which can be described as "unsettled," and even at the expense of completely exterminating the Maya Indians, whose proper habitat it is, Quintana-Roo will be brought gradually into line, as the State of Sonora has—or has almost—been.

In point of population Querétaro stands seventh among the States of the Republic, although it is one of the smallest. The whole population is 233,389, which gives an average of 25.32 in regard to its territorial size of 11,638 kilometres.

Topographically, the State may be divided into two regions, the Northern being mountainous, while the Central and Southern is occupied by plains and valleys. The mountain ranges of Querétaro are very precipitous, although they are not especially famous for great height ; but some of them are at least historic, such as the Cerro de las Campanas, where Maximilian met his death. The rivers which course through the State are sufficient in number and size to very thoroughly irrigate it, while the several small lakes, the principal of which are the Cerro Grande, the Conchá, the San Cillo, and the Saledón, combine with the many swamps and mineral springs to give Querétaro a thoroughly fertile and productive soil. The climate is variable according to the altitude, rainfall and frosts being both moderate.

Owing to the State's extreme fertility, agriculture is pursued with considerable success. Here cereals, leguminous plants, fruits, etc., cotton, sugar-cane and wheat are largely cultivated, the latter yielding 100 grains to the seed, and ranking as the finest grain in the Republic. About 10 years ago the number of plantations in the State, according to official figures, came to 195, but since then, I understand, at least 15 or 20 additional plantations have been registered, so that the total number should be put at 215. Out of these, about 181 are devoted to the culture of cereals, 10 or 11 to maguey-mescal, 5 to sugar, and the balance to cattle-breeding. According to official figures, cereals take prominence, and average over $3,000,000 (Mex.), maguey products coming next with $70,000, ixtle third with $6,000, and tobacco about $2,000. The total value of the stock raised in the State may be put at $2,500,000.

The trade of Querétaro is of very considerable importance, exceeding in value $10,000,000 per annum. This is carried on principally with the neighbouring States, corn, wheat and other cereals, fruits, jerked-beef, etc., being sent thither to the value of $4,000,000, and a trade is done on account of mineral products shipped to the U.S.A. Imports are received to the value of $5,000,000, mainly coming from the U.S.A., Europe and Mexico City, in the order named. The local industries, besides agriculture, embrace mining, linen, woollen and cotton goods manufactures, flower-mills, paper-mills, distilleries, etc.

Of mining in this State I take an extremely favourable view, the regions being among the richest I have seen, and including silver, galena, copper, iron, cinnabar, mercury, coal and lead, while, among precious stones, the finest opals, garnets and similar deposits are found. There are altogether some 60 mines working in the Cadereyta district, 35 in Jalpán, and a dozen in Tolimán. There are some 20 different establishments destined for the reduction of ores, but some of these are now closed down for various reasons. Owing to its mountainous character, the mining region of Querétaro is one of the most difficult to operate, there being very little railway accommodation as yet in the district, the various heavy machinery having, as a consequence, to be dragged up the precipitous mountain sides and down into deep gullies, a task which taxes the available resources of locomotion to the utmost, and is very severe upon the unfortunate mules and "burros" employed.

The State of Querétaro is destined to derive considerable benefit from the construction of a new line of railway between the city of that name and Acambaro, in the neighbouring State of Guanajuato, inasmuch as it will establish another link-line between the two great railway systems of Mexico, namely the National and the Central.

The City of Querétaro to the ordinary traveller must ever remain among the most fascinating in the Republic of Mexico, for it was here that Maximilian made his last stand and where he was eventually taken prisoner, and—a few miles from the capital—was executed. Long before the Spaniards came to Mexico, Querétaro was an Otomite town, and was made a city as early as 1655, by a decree of Philip IV. of Spain. It was here, also, that the treaty of peace between

the U.S. and Mexico was ratified, in 1848. To my mind the most fascinating and at the same time the most tragic thing to be seen at Querétaro is the spot where Maximilian and his two brave Generals were shot, on June 19th, 1867. The place is marked now by a handsome monument in the form of a Chapel, but this has only been erected in recent years. The first means of identification were three rough crosses, unenclosed; then some reverent person built an iron railing around, which some years afterwards was removed to make room for three crosses of stone to the memory of Maximilian, Miramon and Mejia—all three names strangely enough commencing with the letter "M." When the Emperor was condemned to death, he asked as a final request that he might be shot in the heart and not in the head, so that "his mother might look upon his face." In my brief remarks devoted to Maximilian in Mexico will be found some particulars of the unfortunate Emperor's last days in this city.

The churches of Querétaro are among the most beautiful and costly to be found in the Republic, or, indeed, in any country of the world, and Mexico, as I have before observed, is celebrated all the world over for its handsome ecclesiastical edifices. The cathedral, which was formerly known as the Church of San Francisco, dates from 1698, and although its sculptures and paintings suffered in common with those found in other churches during the siege, they still remain among the most remarkable examples of their day. The chapels of San Loreto, Santa Clara (founded by a wealthy Indian), and those of San Felipé, Santo Domingo, San Antonio, San Agustin, Carmen, Merced, Santa Terésa, Santa Rosa and Santa Cruz are all notable for their carvings, both exterior and interior. The Santa Rosa Church has been pronounced by Mr. Charles Dudley Warner, an accepted authority upon ecclesiastical work, as one of the finest chapels in the world. He says: "I know of no Church so rich in wood-carving; it is overlaid with thick gold leaf, almost gold plate, and in some places the gold is overlaid with transparent tortoiseshell. The great altar, which is said to be the richest part of the chapel, was wantonly destroyed by the French when they occupied the City. They tore it down and burned it in order to get the gold. They took it away to the value of $1,500,000."

The visit to Querétaro is worth taking by archæologists, at least if only to see the wonderful aqueduct which still exists in remarkable state of preservation from the early Spanish days. Even now it stretches for over five miles, but formerly was considerably longer. It is still in use, and carries the city's water-supply from the neighbouring hills. Some of the arches are over 90 feet in height, and of these giants there are some eighty. The effect of this enormous mass of masonry as one stands beneath it is overpowering. The Spaniards were certainly mighty builders. The masonry itself is both artistic and enduring, and it is to be hoped that future generations will preserve this magnificent specimen of Spanish enterprise untouched, and regard it, as it is, as a precious heirloom.

Some public buildings in the City of Querétaro are remarkable, and I give elsewhere photographs of one or more of them. The City enjoys an exceedingly good government, the number of educational and charitable establishments which it possesses being among the best that I have inspected in the Republic. Among them may be enumerated the Civil College, the Normal School, the Conservatoire of Music, the School of Arts, the Academy of San Fernando and the two public hospitals, known as the Vergara and the Civil. The Governor's palace is a very handsome structure, and contains the halls of legislature, justice and public-works. Señor Don Francisco Gonzalez de Cosio, the Governor, is regarded with deep respect, and under his rule the State has progressed remarkably during the last few years.

QUERETARO.—Principal *Patio* in the Federal Palace, City of Queretaro.

CHAPTER XLVIII

State of San Luis Potosi: Spanish history—Population—Haciendas and agriculture—Annual production—Great mineral wealth—Some famous mines—Governor Cuevas—His progressive policy—City of San Luis Potosi—Public edifices—Hotels—Lack of water-supply—Improvements projected—Municipal schools—Local industries—Factories and mills—Brewery—Furniture factory—Tobacco trade and factories—Governor and education—Good roads.

Long before the all-conquering Spaniard came, the land around about San Luis Potosi—"San Luis of the Treasure"—was known, but under a different name, to the native Mexicans by reason of its great richness, the annual output of its silver mines amounting to some millions of pounds in value. It did not take the Spaniards very long to make the discovery either, for in a burst of religious fervour one of the chiefs disclosed the fact and even pointed out the principal places of richness. A Spanish monk christened the locality San Luis, and added the name of "Potosi," because he declared the wealth which it contained reminded him of Potosi in Peru. From those days to these it would be difficult to compute the output from the mines, but the annual coinage made therefrom amounted to $3,000,000 for a great number of years, as is proved by the mint's records.

It was in 1666 that the place became a full-fledged city, and while the first church was built in 1583, it was only in 1854 that it became the see of a bishopric. There are several very fine sacred edifices in the city apart from the Cathedral, which was formerly only the parish church, the churches of El Carmen, Merced, San Agustin and San Francisco being all remarkable in their way, even in a land of handsome churches.

The State of San Luis Potosi has to-day a population approaching 580,000, of which the capital claims perhaps

65,000, including a considerable colony of Americans and other foreigners. A more favourable geographical position could scarcely be desired. All its immediate neighbours are distinguished States—Coahuila, Nuevo Leon, Tamaulipas, Veracruz, Jalisco, Hidalgo, Querétaro and Guanajuato. Furthermore, it has the honour of sheltering the Tropic of Cancer, which passes through its northern portion at a point about 23 kilometres to the south of the famous Catorce mining district. Its climate is delightfully mild and yet invigorating all the year round, while its scenic attractions are considerable.

A fine but not very lofty range of mountains traverse the entire State from north to south, and become wild and rugged in the eastern part. Elevated tablelands form the central and western portions, and while these are naturally dry and unsuitable for pasturage, water is found very near the surface, and could easily be used more largely than it is for irrigation. On the extreme south of the State, a number of rivers are found, such as the Tantojon, the Tamuin and the Panuco.

The many fine and flourishing haciendas in the southern portion of San Luis Potosi prove what can be done with this soil. Agriculture is pursued with great success, and the several cattle-breeding establishments which I saw looked uncommonly prosperous, although the summer of 1906 proved an exceptionally dry one. There are some 30 celebrated cattle-breeding farms in this State which ship their beasts to America. The crops also were very good in appearance, and, as I was informed, proved so in quantity of their yield. The State contains nearly 200 large, and many more smaller, plantations; 4 of these are devoted entirely to coffee, 40 to sugar, 138 to cereals and about 15 to the maguey plant. According to Government statistics it seems that the State produces barley, oats, rice, corn and wheat, to the annual value of between $5,000,000 and $6,000,000; sugar-cane, of a total output of 4,130,000 kilograms, representing a value of $296,500; rum, 36,500 hectolitres, worth $650,000; maguey (mescal and pulque) 52,000 hectolitres, worth $560,000; and textile fibres (ixtle and cotton) aggregating 3,770,000 kilograms, valued at $540,000.

It is, however, in mining rather than agriculture that San Luis de Potosi has become one of the wealthiest States in

Mexico. Under the heading of Mining in Mexico (Chap. LXX.) I set forth the remarkable yield of this richly-endowed portion of the country, which has been materially assisted of late years by the improvements and extensions made in the railway services. No State is better served in these methods of locomotion, the National Railroad traversing it from north to south and the Central (branch line) from east to west, both lines having handsome stations erected in a convenient portion of the capital. Easy and rapid communication is made with the United States and with the shipping port of Tampico. There are two smaller but useful lines, running respectively from Matehuala to La Paz, about 21 kilometres, and the other from Vanegas to Matehuala, about 47 kilometres. These are practically mineral lines, but without them the rich mines which they serve could barely be worked at a profit.

During the term of governorship held by Señor José M. Espinosa y Cuevas, many useful and wise enactments have been introduced into the State of San Luis Potosi. In the capital, which bears the same name, a sanitary board keeps a firm hand over the people and compels attention to cleanliness and orderliness, which without some such supervision it is safe to say no Mexican peon would consider necessary. The consequence of this is a refreshingly-clean and well-kept city, in striking contrast to some others ; a respectably-clad people, few tatters and rags being seen on the public streets; and some extremely handsome new buildings going up in many directions. San Luis is not a beautiful city, as yet, but it is fast becoming one. Unfortunately the streets, which are narrow and the buildings on either side rather high for Mexico, are paved with cobble-stones, neatly laid in pattern form, but causing a terrible racket from the passage of heavy wagons and builders' carts. Such pavements endure almost for ever, as the original laying has been only too-well done ; so I am afraid that San Luis will not be relieved from this kind of trouble for some time to come.

In the matter of proper hotel accommodation the city has also yet to earn its laurels. There are several hostelries in the town, but not one of them has any claim to be considered even a moderately good one. The Internacional is situated favourably, being on the Alameda, which, one day, will be a

fine and shady rendezvous; but the accommodation is primitive, and the rooms are mostly dark and dreary. The Progréso, located in a narrow side street but near the main plaza, is managed by a German and his wife in a very indifferent manner. The furniture for the most part is good and ample, and the rooms are well proportioned. But both the *cuisine* and the attendance are very poor, and little or no attention is paid to complaints.

One great drawback from which the city of San Luis Potosi suffers is the lack of a good and adequate water-supply. The climate is an exceedingly dry one, rain sometimes failing for more than twelve months at a time. The city possesses a dam, but the quality of the water is poor. In one of the public thoroughfares there are two fine wells, however, worked by electric pumps, and these supply practically the whole of the drinking-water of the community, the quality being perfectly pure and cool. The liquid is sold at one centavo a large can; and the consumers must come and draw it for themselves. There are several other drinking-fountains scattered about the city, but there is no house-to-house supply available at present. It is the intention of the State Government to construct large reservoirs in the neighbouring hills so soon as the public finances warrant the outlay; and the question is already before Congress. In spite of the deficient water-supply, San Luis is a very healthful community, there being but little sickness, and no case of epidemics for many years has been reported.

In the whole State there are some 173 Government and 162 Municipal schools, devoted to primary education. Several institutions of a higher educational character are maintained by the Government, one of the best being the Scientific and Literary Institute, possessing a list of notable professors and a large membership. Several distinguished scholars have graduated from here. The State Library contains 100,000 volumes, while some of the Government buildings, such as the Municipal Palace, the Alóhndiga and the Lonja Mercantil, are fine specimens of architecture.

The tramway service, horse and mule drawn, is poor and inefficient. The cars are old and uncomfortable, but are by strict State ordinance kept scrupulously clean. It cannot be long before the town, which is very progressive and is enjoying

much prosperity, will follow in the wake of others by installing an electric-car service. The streets being perfectly straight, although narrow, and the ground absolutely flat, the conversion from animal to electric traction would be a matter of facility and but moderate outlay. The cab service is very good, open, single and double-horse buggies of the "spider" type being available at the moderate price of 50 centavos (1s.) an hour, and no "*pour boir*" expected or asked.

The capital city is notable for the number of important factories which it contains, and most of which I was permitted to inspect. The ready-made clothing factory known as La Cruz, and belonging to Messrs. Enrique Zavalla y Cia, employs 160 women and 16 men. The whole of the cutting-out, sewing, pressing and putting-on of the buttons is done by electrically-driven machines, and it is surprising to note how time-saving and otherwise economical these prove. The women use over 150 Singer electrically operated sewing-machines, and they thus have no foot-work to do. The clothing, which comprises the commoner kind of wearing apparel, as well as shirts and underclothing for men, is sold retail in the Company's own shops.

The small flour-mill, owned by Señor Ieturrei, and known as Molino de San Luis, is situated on the line of the Mexican Central railway. The machinery is entirely American, being the product of the Nordyke and Marion Co., of Indianapolis, Indiana, U.S.A. The space being limited, the machinery is very crowded, and occupies but one-half the floor room which it should. The mill turns out 250 barrels, of 196 lbs. each (say 500 bags), of flour daily. The wheat used now is entirely Mexican, but this is not equal in quality to the United States grain. Since the Mexican Government increased the duty to 3 cts. per kilo from 1½ cts., it has been found impracticable to further import wheat from the States. The import formerly stood at 5 cts. per kilo.

The San Luis brewery, although a small undertaking in comparison with the Orizaba, Toluca and Monterey breweries, produces a very excellent pilsener and lager beer, which enjoys considerable vogue throughout the State, and even beyond it. It employs about 180 men and boys, and has all the latest bottle-washing and filling machinery, and an up-to-date brewing plant.

There are likewise several paint, candle, pottery, soap and hat factories, giving employment to a large number of men, women and children, but the rates of labour are lower here than in many of the States of the Republic.

The furniture factory of Jorge Unna and Cia affords evidence that both in beauty of design and excellence of manufacture the Mexicans have little to learn. Some of the most elegant furniture is made at this large and well-planned factory, which constantly employs 400 men who work on "piece," a system found mutually satisfactory. Every article turned out is to special design and order, scarcely anything being duplicated except for suites, no stock being kept on the premises. Elaborately carved church choir-stalls, a bishop's throne, brass altar rails, and an exquisitely designed altar were a few of the articles in process of manufacture at the time of my visit.

I was also shown an expensive and very vulgar suite of drawing-room furniture, the brightest of crimson damask and the gaudiest of gilded frames, made to the special order of Pedro Alvarez, the millionaire mine-owner of Parrál, who was formerly a peon-miner, and apparently adheres to his early tastes for sumptuous ostentation.

Messrs. Jorge Unna and Cia have likewise turned out a number of weird machines and apparatus for eccentric inventors; and they assured me that while they faithfully execute all orders of this kind, which they find very remunerative, they have never known one of them to have succeeded from a practical point of view, nor to have brought to their inventors anything but trouble or financial disaster. The firm sent several suites of their furniture to the St. Louis Exhibition, 1904, where they were awarded the Gold Medal, and found a purchaser for their goods. The freight and packing expenses were so heavy, however, and the U.S. Government charged so high a duty upon the goods, that the manufacturers in the end came out losers, and they doubt very much whether their time, trouble and outlay brought them any adequate return.

There are 4 cotton factories, making bleached and fancy (grey domestic) goods, mostly worked with Mexican capital,

very little foreign money being thus employed. The manufactures are not of the highest class, but they secure a ready sale on account of their cheapness among the peon consumers, especially the women.

Another tobacco factory of some importance is that of Antonio Delgado Renteria, of San Luis Potosi, established in 1860, and employing about 400 men and women. Most of the cigarette machinery in use is of German and American design; but the manufacturers make the whole of the cigars and cheroots by hand, no machine as yet invented for these, they declare, having proved satisfactory. The whole of the tobacco used is Mexican, and the output of the factory is consumed entirely in Mexico. The labour is both extremely cheap and abundant. For making 2,000 cigarettes by hand the payment is 40 centavos (say 10d.), and the most expeditious workers cannot earn more than 80 centavos (1s. 8d.) a day, the average being from 40—60 centavos. The cigarettes which are made by hand are sold at the lowest prices, these being as little as 3 centavos (less than $\frac{3}{4}$d.) for 21 cigarettes, or 40 boxes, each containing 21 cigarettes, for $1.00 (2s.). The cigars and cheroots sell at from $20.00 (£2) to $80.00 (£8) per 1,000, according to the quality. The factory pays $7.00 (14s.) per arroba, about 25 lbs., for the raw material, and buys in great quantities, and in any market which offers in the Republic. Each packet bears a $\frac{1}{2}$-c. Government stamp.

Don José Maria Espinosa y Cuevas, the Governor of San Luis Potosi, is 47, and looks even less. He is extremely vigorous, and regards work as the one thing worth living for. As an engineer, he has attained great eminence, since he was one of the principal surveyors and constructors of that remarkable piece of line between the port of Tampico and the City of San Luis Potosi, probably as fine a piece of construction, through a most difficult country, as one can find anywhere. Don José Espinosa y Cuevas has been Governor of the State of San Luis for about three years, having succeeded Señor Don Blas Escontria, who became Minister of Fomento, and died early in 1906.

One of the Governor's principal "fads," if one may call so

excellent a sentiment a "fad," is education for the masses, believing, with Pope the poet, that

> "'Tis education shapes the common mind:
> As the twig is bent, the tree's inclined."

He advocates the teaching of languages in such manner as they may prove serviceable in commercial intercourse, and not merely as a mental drill; and he has put his principles into practice by teaching himself English, which he both speaks and writes fairly well. Through his efforts, the public schools at San Luis Potosi are well attended, due, no doubt, to the practical methods which he has caused to be adopted.

He has done much for his State by insisting upon the construction of good roads and increasing railway communications, and the San Luis of to-day is a very different place to the San Luis of, say, 5 years ago. His excellency has travelled somewhat in the United States of America and England. In fact, he has lived in London, and like most Mexicans, he prefers it to New York. In this respect he is not unlike many Americans, who put their ideas to the crucial test by living in the "Little Village" for the greater part of their time.

Photo, by Winfield Scott.

San Luis Potosi.—Church of El Carmen in the City of San Luis Potosi.

Veracruz.—A Street in the Town of Orizaba.

CHAPTER XLIX

STATE OF SONORA: Temperature and products—Minerals—United States markets and capital — American Trade — Hermosillo — Sunset Effects — Labour riots and their causes. STATE OF SINALOA: Picturesque country—Sparse and scattered population—Agriculture—Port of Mazatlán—Topolobampo—Land schemes and their victims. STATE OF TLAXCALA: Independent Republic—Interesting associations—Climate—Export trade—Small population. STATE OF TABASCO: Agriculture and mining—Government.

WITH one exception, Sonora is the largest State in the Republic of Mexico, and while several years hence it will unquestionably become one of the most important of the Union, it is at present but partially developed, a fact which may be due to the great difficulty which the Government has met with in subduing the wild hordes of Indians known as Yaquis (and who have infested the most fertile and productive portion of the State), on the one part, and the absence of railway communication on the other. The boundaries are the States of Arizona and New Mexico (U.S.A.) on the north; Chihuahua on the east; the Gulf of California on the west, and Sinaloa on the south. With a coast-line of some 860 kilometres, from the mouth of the Colorado River to the Port of Agiabampo, the State has a total area of close on 200,000 square kilometres, or, to be exact, 198,496.

It must not, however, be assumed that the whole of this is productive land. As a matter of fact, the Sonora littoral is low and arid and entirely useless for cultivation, and one peculiarity of the climate is that rain falls from a cloudless and serene sky. It can be excessively cold in the mountains, but it is temperate on the slopes, and high and dry near the coast and in the valleys. Although the soil is naturally fertile, there is a complete lack of adequate irrigation facilities. Such products as are grown include cereals, tobacco, cotton, sugar-

cane and fruits. Official figures state that the number of plantations in Sonora is at present under 300, and may be divided as follows: Sugar-cane 45, cereals 180, fruits 4, maguey 8, tobacco 13, and cattle ranches make up the remainder. The State's production is approximately $3,950,000 in cereals, $45,000 sugar-cane products, $800,000 maguey and $65,000 tobacco. Whereas at one time cattle was exported to the U.S.A., the American Government has of late imposed such high duties, which are almost prohibitive, that this branch of commerce has largely decreased.

It is not perhaps surprising to find so little attention given to agricultural pursuits in Sonora in view of the strong temptation which is offered to indulge in mining, this, at present at least, being far better paid than agriculture is ever likely to be.

As I have already pointed out, however, with proper irrigation large sections of the State of Sonora at present untouched could be brought into agricultural production, and probably no better soil could be found for the raising of the sugar-beet than is here ready at hand. The rich alluvial soil of the numerous valleys could also be utilised for the cultivation of tobacco; while wheat, corn, alfalfa, mealies, and vegetables of all kinds, and most descriptions of fruits, could be cultivated very profitably. With so much sugar already raised in the northern part of the State, it is remarkable that no central refinery has as yet been erected. No doubt the enterprising capitalists who are thronging into Sonora from the U.S.A. will see the advisability of supplying this want, which I have very little doubt will prove extremely profitable.

On the other side of the Yaqui River there are to be found some very rich agricultural lands, which are further favoured with an abundance of water all the year round. Here can be grown all kinds of fruits and vegetables, only the smallest amount of attention being necessary. Moreover, this produce ripens a full month or six weeks before California and Arizona products, so that a ready market will be found in the U.S.A. In the meantime, however, the home market is proving an excellent customer, since the population of Sonora is continually increasing owing to the new mines which are coming into operation, and the increased amount of labour being

imported. One of the greatest advantages of this State is the abundance of water for all practical purposes, including that of irrigation.

The town of Guaymas is receiving a great fillip by the construction of a new smelter, and it is from the State of Sonora that the Globe (Arizona) smelters have been deriving much of their sulphide ore, the absence of which has, in times past, greatly handicapped operations at the Old Dominion smelter. With the erection of the Guaymas smelter, a great many mines located in the surrounding country will come into active operation. There is no question that the construction of the new line of railway will also be the means of opening-up one of the richest mining sections of the Republic of Mexico.

In the State of Sonora up till the end of December, 1905, foreigners were debarred from working or appropriating mining claims owing to the danger that they incurred from the raids of the turbulent Yaquis. With the revocation and rescinding of this ordinance, a fresh impetus was given to mining in the State, while at the same time it showed clearly enough that the long-existing trouble caused by the Yaquis was at an end.

The cancelling of the prohibition naturally meant a great deal to the numerous prospectors and capitalists, who were interested in the original mining districts affected, more especially those residing across the border, in the States of Arizona, New Mexico and Texas (U.S.A.). Round about the neighbourhood of the town of Guaymas, which has a population of about 19,000, there are some promising coal-beds, which are being worked with modern capital and indicate a sufficiently encouraging return. Hermosillo is the State capital, and has a population of 11,000. This district is also believed to be very rich in minerals.

Hermosillo possesses a large number of handsome public buildings, among these being the Federal assay-office, a cathedral, a public library and Government Palace.

The inhabitants of the State of Sonora are, taken as a whole, an exceedingly peaceable and thrifty set, and although last year a great deal of trouble was occasioned at Cananea among the miners employed there, those who know the peon populace of the State emphatically pronounce them to be

among the most respectable and law-abiding of the Republic. Like other high-spirited people, however, they decline to be treated like brutes, as was the case when they revolted against the bullies who had charge of them at the Greene copper mines.

Certain it is that they are a very thrifty lot, and have fully profited by the high wages which have prevailed for the most part at the Cananea mines. Some men have averaged $5 (10s.) per day, and very few made less than $2.50 (5s.). The labouring classes throughout the mining district live well and manage to procure all the necessities of life, as well as many of its luxuries — butter, canned goods, American groceries and first-class bread being commonly used by them.

The Bank of Cananea, which is chosen by most of the peons as the receptacle of their savings, reports that it holds a large number of current accounts belonging to miners ranging from $100 to $1,000 (£10 to £100). Deposits of $100 and over create a total of nearly $50,000, entirely represented by the savings of Mexican labourers in the employ of the mines, which have between 5,000 and 6,000 men on their regular pay rolls. A general air of prosperity prevails throughout the town, while the whole State of Sonora, when opened-up, as I have indicated, by a new line of railway, will probably advance to the front ranks of the States of the Republic.

Among other enterprises which have started in the State of Sonora may be mentioned a furniture factory, an implement and wagon factory, a distillery, a match and candle factory, a cigar factory, a tannery and a soap factory. In July of 1906 the Mexican free zone, a strip of land along the northern boundary of the U.S.A. 12½ miles wide, was abolished, which meant the raising of a duty of 10 per cent. on imports. This has naturally led to the establishment of the several manufacturies to which I have referred, and may possibly lead to the introduction of still more.

The town of Cananea is a long straggling place, typically an American mining settlement, and destined, no doubt, to become a very flourishing centre at no distant date. It already possesses several handsome private residences, two or three very fair hotels, and a public hall. The roads are as yet left in their primitive state, which is one of deep sand,

converted during the rainy season into thick and sticky mud. A good deal of drunkenness unfortunately exists, and the mines managements do little or nothing to check the evil. Crime naturally exists here, especially among the lower-class peons and the Chinese.

There is a continual increase in the investment of capital in this part of Mexico from the United States, not only for the purpose of developing mines, but also for timber and grazing land. The latter are being stocked with improved breeds of cattle in spite of the heavy duties prevailing, while of mining interests, which are mainly scattered along the Sierra Madre slopes, I speak at length in my general chapter on mining.

The internal communications of the State of Sonora are at present poor, the only railway traversing the State being the Guaymas and Nogales, known as the "Sonora road," some 423 kilometres in length. It runs from Nogales in Arizona, and connects with the Southern Pacific Railroad. The line is profitable in the extreme, but very badly managed. The Company is now completing a line from Guaymas to Guadalajara, with a branch connecting with Naco, which is the border-town between the U.S.A. and Mexico. Fuller particulars will be found of this line and its contemplated extension in my chapter dealing with railways under construction. (Pp. 286-287, Vol. I.).

Sinaloa is one of the Pacific States, and although, at the present time, some seven-tenths of its immense area is uncultivated and practically unknown, it is bound to become at no distant date one of the most prominent territories of the Republic. A great railway is being completed from the north to the south, which will open-up a tract of land, which is pronounced by experts to be among the most fertile and richly mineralised in Mexico.

To the north are Sonora and Chihuahua; on the east are Chihuahua and Durango; on the south the Territory of Tepic and the Pacific Ocean; while on the west is the Gulf of California. With its area of 71,380 square kilometres, and a sea-coast measuring 510 kilometres, the entire population is under 300,000.

A unique geographical feature of the State is the long range of mountains in the north, reaching out at right-angles from the Sierra Madre in a westerly direction, to within 35 miles of the Gulf of California. It is in these mountains that the great mineral wealth is said to be mainly deposited, while in the valleys, of which there are several, probably no finer cotton-land exists than is to be found here. The coach-road leads across the Sinaloa river, winding through an extremely picturesque valley, in which may be found flourishing cane-fields with their attendant sugar-mills, corn-fields, and pastures covered with healthy-looking cattle. On all sides are to be seen densely-wooded hills and rugged mountains, among the latter being conspicuous the imposing Sierra Madre, crowned by the precipitous peaks of Casanate.

With so many fine rivers, it may be well understood that the State is one of the best-irrigated sections of the Republic. The Fuerte, for instance, is 670 kilometres in length, the Sinaloa is 420, the Culiacán 250, the Elota 221, the Piaxtle 203, and several, such as the Quila, the Presidio and the Charmetla, are anything between 150 and 180 kilometres in length. Besides the numerous tributaries which all these rivers possess, there are some 200 smaller streams traversing the State, forming one of the finest watersheds in the Republic of Mexico. The climate generally is agreeable, but rains are too abundant in the mountainous districts, where the precipitation is excessive.

Agriculture is the main industry of this State, cereals, cotton, tobacco, sugar-cane, coffee, and fruit-growing to perfection, all being followed very largely. There are at present some 121 plantations in the State, divided as follows:— cotton 9, sugar-cane 20, cereals 20, maguey 24, and about 48 cattle ranches. The estimated value of their products is as follows: — Sugar $2,000,000, sugar-cane products $1,600,000, maguey $200,000, tobacco $33,000, and ixtle $35,000. Cattle-raising, which is one of the principal industries of the State, has an annual estimated value of $10,000,000.

The principal port, viz. that of Mazatlán, receives and discharges a considerable amount of this State's foreign trade, but, unfortunately, the Port of Mazatlán is very inadequately

provided with shipping accommodation and appliances, and the Federal Government are seriously contemplating spending several millions here, as they have already done with excellent results at Manzanillo. The other customs-port is Altata.

In regard to internal communication the State is as yet very deficiently served. The Sinaloa and Durango Railway, which is also known as the Western Mexican, runs between Altata, the port, and the Culiacán de Rosales, which is the chief-town of the State, with about 10,500 inhabitants, and situated 1,478 kilometres from Mexico City. The length of the railway is about 62 kilometres, but it is indifferently run, and the rates are higher than are considered reasonable.

The International Railroad has constructed a branch line from Villa Lardo, in the State of Durango, to Topolobampo, which is the Pacific terminus for the Kansas City, Mexico and Orient Railroad, now being constructed, and of which full particulars will be found elsewhere in this volume. The Southern Pacific Railroad, as already mentioned, is gradually continuing its line — the Cananea, Rio Yaqui and Pacific Railroad—from Agiabampo and Topolobampo.

Some of the immense tracts of untouched land, in one case amounting to several million acres, have been taken up by speculative American syndicates with the idea of colonisation. In regard to these propositions, however, the utmost caution should be exercised by intending settlers, in view of the distressing experiences which have already been met with in other parts of Mexico, and to which I refer with more fullness later on. No doubt the valley of Sinaloa offers good opportunities for agricultural horticulture, viticulture and stock-breeding purposes, but settlers who purpose acquiring holdings from Land Companies should inquire very closely into the terms upon which their allotments are granted, for many of these same companies are sharks of the very worst description, and once they obtain a hold upon an investor or a settler, they are absolutely conscienceless in their exactions. Bitter are the complaints of many of those who have trusted them in Mexico as elsewhere, but unfortunately fresh victims always seem to be forthcoming. The commercial conquest of Sinaloa has not yet been accomplished, and it will take several years yet before settlers can expect any return upon their

investments. The State Government may be urged to do something more than it does at present to safeguard the interests of new settlers and to relieve them, as far as it can, from the danger of falling into the hands of speculators and land-sharks.

Tlaxcala, which means the "the land of bread," is the smallest State in the Republic of Mexico, its total territory not exceeding 4,132 square kilometres. Nevertheless it has a population of 172,315, according to the latest statistics, which shows an appreciable increase over that of the previous census, which placed it at 163,244. With its average of 41·68 inhabitants to the square kilometre, Tlaxcala ranks amongst the most thickly-populated States in the Union, only the Federal District showing a better return.

At one time Tlaxcala was known as the Tlaxcalteca Republic, and was inhabited by an exceedingly warlike and brave race, quite unlike the Aztecs, and in those far-off days numbered about 300,000, instead of about 4,000 at which they are estimated to-day. The precise origin of these interesting people is difficult to trace in historical data. All that is known of them to-day is that the supreme power of the democracy was vested in a Senate of four, chosen by the Republic. For a long time it held its own against the Aztec empire, of which Moctezuma II. was king, as it had held it against many of his equally haughty predecessors. When the Conquerors came to New Spain, the Tlaxcalan Republic was the only part of the country which they could not subdue, and the braves of that place were proof against both their bribes and their threats. In the end, however, treachery succeeded in accomplishing what strategy and persistency could not effect. Tlaxcala was eventually captured, and Cortés became its master.

The modern State of Tlaxcala covers precisely the same territory as it did in the days of the ancient Republic, but the site of the capital city has been altered. The modern city lies in the valley formed by the surrounding hills, whereas the ancient city, in order to better its defence, was built high on the hills themselves. As one enters the town the hill of Ocatlán stands out clearly to the left, and it is here that the

CITY OF TEHUANTEPEC.—Avenida del Ferro Carril

See p. 97.]

A STREET IN THE CITY OF COLIMA.

See p. 22.]

palace of Maxixcatzin, the chief of the Tlaxcalans, who defied the Spanish conquerors, was located. On the same spot has now been erected the Church of the Sanctuary, which was built by the pious senators and four Tlaxcalan chieftains who accepted "the faith" doubtless at the spear's point, for it was in that simple but efficacious way that the Spaniards usually converted the unbelieving native.

The situation of this little State is very favourable, lying as it does some 2,000 metres above the level of the Gulf, and forming a portion of the great central-plateau itself. The mountain ranges which extend round about include the eastern slopes of the famous Popocatapetl, which rises by gentle slopes to the west of the State; while towards the south is Malintzi, with its snow-capped peak some 4,120 metres in height, and the Xaltonale, 3,850 metres high. There are likewise several fertile valleys, such as Huamantla, Pié Grande, Apam and Zahuapam, while the fine, broad river of the same name empties itself into Atoyac. Other water courses are the Negros, Tenexac, Achiachiapam, Totólac and Tequixquiatl.

Perhaps it would be difficult to find a more thoroughly agreeable climate than that of Tlaxcala, the rainfall being very moderate throughout the year, and there being a pleasant touch of frost in the air during the early winter mornings. Agriculture is the principal pursuit of this State, cereals and pulque forming the chief class of products. Considering its limited area, the number of plantations which are to be found here may be considered extremely satisfactory, there being, according to the latest calculation, about 160 of these, many of them of considerable size and importance. About 100 are devoted to cereals, 48 to maguey, and the remainder to cattle-raising. Although gold, silver, lead, cinnabar and a small proportion of coal have been found in the State, it does not rank of any importance as a mining district. The value of its annual commerce is estimated at about $8,000,000 (Mex.), the principal export being that of pulque, which finds its way to the City of Mexico and Puébla, as well as to the adjacent States. I have seen numerous specimens of the maguey plant in Tlaxcala, where it seems to be grown to perfection. I believe there are some 125 species of the maguey to be found throughout the Republic, but nowhere have I seen the plant

grow more abundantly than on the elevated plateau, of which Tlaxcala forms part.

There are several mills devoted to the manufacture of paper and cotton, and altogether the State is a remarkably enterprising one, and, in proportion to its size, contributes very considerably to the national wealth. In point of internal communication there are three railroads which cross the State, the Mexican Railway, the Interoceanic and the Santa Ana and Tlaxcala, the latter a local and destined at some future time to become a more important line.

The State capital, which bears the same name, has but 3,000 inhabitants, but, in spite of this fact, it possesses several substantial and handsome buildings, which include a theatre known as the Xicotentacl and a bull-ring of considerable dimensions. The City claims to be "in direct communication with the City of Mexico"; but it is necessary to add that on leaving the train at the small station of Santa Ana, the traveller has to journey 6 miles in a broken-down horse-car, which is divided into "first" and "second" class, one being only a trifle more uncomfortable than the other. But if the means of transit is poor, the country through which the traveller is borne is extremely interesting, the track running through acres of highly-cultivated fields between tall hedges, covered with wild-flowers, through many picturesque, clean little towns, across a river and past the famous Church of San Estebán. The two mighty volcanoes Popocatapetl and Ixtaccihuatl, dazzling white and glistening in the sunlight or rose-tinted in the sunset, are continually in view, and make the journey interesting on their account alone. The Cathedral is particularly attractive to archæologists, containing as it does the first Christian pulpit to be erected in Mexico. There is a tradition which states that Tlaxcala was the first place selected by the mythical eagle which now forms the national emblem of Mexico, and which is said to have settled at this place before it flew on to Mexico City, or what was then known as Tenochtitlan, at the command of the God Huitzilopochtli.

It is only within the past few years that the State of Tabasco has commenced to be opened-up, and even now but the fringe of this fine stretch of territory has been touched. It lies in

the extreme south-eastern part of the Republic, and, although possessing 26,094 square kilometres of area, its entire population is less than 160,000. A glance at the map will show that the State possesses a stretch of some 190 kilometres of coast-line, on the Gulf of Mexico, which forms its northern boundary, the State of Campeche being on the east, Chiapas on the south, Veracruz on the west, and the Republic of Guatemala on the south-east. Strangely enough, although the coast-line is very low, it is generally found to be perfectly healthful, and very little disease has been known there.

There are neither bays, harbours, nor capes on this stretch of coast, but vessels find safe anchorage in the mouths of the rivers, which are called "bars," the principal of which are the San Pueblo and the San Pedro, which are formed by the rivers bearing the same name uniting at the boundary between the States of Tabasco and Campeche. There are additional bars formed by the rivers Tabasco, Frontéra, Grijalva and the Chiltepec, which is the widest and deepest of all. Except towards the south and south-east, where a spur of the Sierra Madre mountains rises, Tabasco may be described as a tolerably flat, plain State, only but slightly broken by hillocks and river beds. It is the latter, however, which give such a remarkable fertility to the soil, there being probably no State in the Republic which has a more valuable hydrographic system. The climate is decidedly hot, but it is tempered by the large amount of water, while the rainfall is also abundant. The *fauna* and *flora* of Tabasco are practically endless in variety, and every species of both, found in every other part of the Republic as well as in the most tropical countries, can be met with here.

The great feature of Tabasco, to my mind, will lie in its agricultural resources when properly developed; but there are individuals who have traversed the State perhaps a great deal more than I have, who declare that agriculture must give place eventually to mining. These authorities state that Tabasco is *par excellence* a coming mining State, but this of course has to be proved. It only remains to add that, up to now, mining has received but scant attention, if I except a little fossicking which has been done in connection with coal, asphaltum and cinnabar.

On the other hand, Messrs. S. Pearson and Son, Ltd., who have expended both time, money and patience upon prosecuting the research for payable petroleum in the States of Veracruz and Oaxaca, have lately gone into Tabasco, where, I am told, the promise of success is considerable.

Considering how little is known of the State, and the small amount of foreign capital which has been invested there, up till now, commerce is being fairly well developed. There are some 500 commercial houses established in Tabasco, representing a native capital investment of $5,000,000 (Mex.), which may not appear very much, but it nevertheless forms the nucleus of a future prosperity. The annual foreign trade at present scarcely exceeds in value $500,000, representing imports $350,000 (Mex.) and exports $150,000. The leading articles of export are dye and cabinet woods, hides and skins, coffee, tobacco and rubber, while the imports include practically all manufactured articles. So far there have been no railways built in the State, if I except a few horse-trams, varying between 6 and 10 kilometres each, nor do I know of any which are contemplated. The rivers afford for part of the year excellent means of intercommunication. The river transit systems support several lines of steamers, all of which appear to carry good freights and a large number of passengers, except during the dry season, when the rivers are too low to support them. The wagon-roads and mule-paths are laid all over the State, and are maintained in fairly good condition, which is easy, owing to the general flatness of the country.

The principal town is San Juan Bautista, which is the State capital, with about 11,000 inhabitants. The city is by no means an unpleasant one in which to live, in spite of the great heat which prevails there during the greater part of the year. It contains several substantial and even handsome buildings, among these being the Palace of the Legislative and Executive powers, while several churches, hospitals and a theatre may be included among the other show edifices. The Governor is General Abraham Bandala, who was re-elected for his second term by a practically unanimous vote on November 17th, 1906.

CHAPTER L

STATE OF TAMAULIPAS: Topographical conditions—Richness of soil—Agricultural productions—Port of Tampico—Great improvements—Central Railway's extensions—Projected short line—Shipping—Remarkable increase—Promising progress—Ciudad Victoria—Governor Pedro Argüelles—Progressive policy—Encouraging foreign capital—Opportunities for favourable investment—Great timber resources—Beauties of scenic surroundings—State's finances—A healthy condition. TERRITORY OF TEPIC: Agriculture—Richness of soil—Great wheat prospects—Tobacco—Lack of railways—Population—Flood disasters.

TAMAULIPAS is one of the five Gulf States, and the largest, after Yucatán. With its population of 220,000, it has an average of but 2·61 inhabitants to the square kilometre, the area of the State being nearly 84,000 square kilometres.

Of all the States in the Republic, Tamaulipas is one of the fairest, and it has been richly endowed in practically every desirable attribute—in its soil, in its vast tracts of timber, in its magnificent navigable rivers and in its minerals; while scenically it undoubtedly occupies one of the most beautiful sections of Mexico. Its coast-line stretches from the border of the Rio Bravo, on the north, to Tampico, on the south, an extent of 400 kilometres, the whole length being a succession of sandbanks. Practically the whole of this portion is uninhabited, the main population being scattered round about the Port of Tampico and the capital, Ciudad Victoria.

The central and southern parts of the State are very mountainous, while the northern part contains some extensive fertile plains, admirably adapted for stock-raising. Among these is the Valley of Jaumave, the natural beauty of which it is impossible to describe, but which has been pronounced by world-wide travellers as ranking among the most

luxuriant and imposing that the world has to offer. The four largest rivers in the State, all of which can be made navigable for almost their entire length with very little outlay, are the Rio Bravo del Norte, which forms the boundary-line between Mexico and the U.S.A.; the Soto de la Marina, which is already easily navigable for 50 kilometres from its mouth; and the Guayalejo, with a large number of picturesque and useful tributaries. There are also several salt-water lakes on the Gulf Coast, the largest being the Laguna Madre, 210 kilometres in length, and containing several small islands, while the Pesquerias is 34 kilometres long and also contains several small islands. The Tordo, San Andrés, Chairel and the Carpintero are all of importance.

Rich and diverse are the *fauna* and *flora* found in this State, which is no less remarkable for the rapidity with which its prolific soil can be brought to perfection. The principal products among an immense variety are cereals, leguminous plants, sugar-cane, coffee, tobacco, cotton, and maguey. The plantations, of which there are between 80 and 90 of importance, are usually of great extent, land being remarkably cheap at the present time. There are some 3 cotton estates, 28 devoted to sugar-cane, 25 to cereals and the remainder to cattle-raising, the combined value of their annual production being between $1,150,000 to $1,250,000 (Mex.) for cereals; $80,000 for sugar-cane products; $35,000 for cotton, and $15,000 for coffee. Vegetable and fruit orchards are maintained with very little trouble in this sun-blessed and well-watered land, principally upon the stretch which lies between the Gulf and the Tamiahua Lagoon. Although this piece of land is barely 5 miles in width at its widest part, it probably contains some of the richest ground to be met with anywhere in Mexico. The winter-fruit and vegetable-growing industry will probably become one of the most profitable businesses in Tamaulipas, and those ranchmen and settlers to whom I have spoken on the subject in every case assured me that they had secured large profits on their shipments, principally, however, in connection with tomatoes. Others have succeeded beyond their expectations in hog-raising, which, it would appear, pays handsome profits at the prices fetched to-day by lard, ham and bacon. An American ranch-owner is engaged in opening-

up land to plant ribbon-cane, and he stated that "there is no crop in the world which pays better than cane, nor a country on earth which grows a finer quality than Mexico."

If one may judge from the glutted appearance of Tampico fruit-market, which handles almost exclusively the produce grown in the district, the claims made for the fertility of the soil are well substantiated. Nowhere can one find finer aguacate or mangoes, while the oranges and apples will vie with any grown elsewhere.

Fibre-growing promises to be a very important industry in the arid region which is found in the centre of the State. While henequén has made Yucatán one of the wealthiest agricultural communities in the world, it is also destined to do a great deal for Tamaulipas, where, it is said, the plant can be grown much more cheaply than in Yucatán, and where it possesses no enemies.

With regard to stock-raising, good specimens of horses and cattle are being imported from the ranches of the interior, where the climate is admirably adapted to cattle-raising, by reason of a happy medium between the tropics, where insects and particularly ticks are troublesome, and further north, where the winters are too cold. Upon the open prairie land of Tamaulipas stock thrive remarkably well, natural grass being found there in abundance all the year round, the stock needing no extra food or shelter.

The Port of Tampico is not precisely on the coast, but situated several miles up the river Panuco, a remarkably noble stream in which the navies of the world could ride with ease, and which accommodates the largest and deepest ocean-steamers. Since the Government, in conjunction with the Mexican Central Railway, built the new jetties, and the Port has been provided with a range of handsome and commodious customs and ware-houses, the increase in the Port's shipping has been immense. Between 600 and 650 vessels enter Tampico annually, and I do not think that I exaggerate when I say that in a few years hence this number will be almost doubled. The future importance of this Port can hardly be over-estimated, handling, as it does, and must always do, the greater part of the international business of the Republic. The Mexican Central Railroad Co. are now constructing, at

an enormous outlay, a new short-line of railway which will connect the Port of Tampico with the Capital of the Republic, and, when finished, an additional amount of through traffic from the Eastern ports of the United States must inevitably come over this system. The freight will then be brought to Tampico through the Atlantic and Mexican Ports, and then on to Mexico City by the new short-line, reducing the length of the haulage by nearly 1,000 kilometres.

The work already carried out by the Central Railway stands as a lasting monument to their industry and enterprise. Upon the construction of the works more than 1,000,000 tons of rock have been quarried, fully 70 miles away in the mountains, and hauled car by car down to the coast, where it has been used for the construction of long sea-walls, situated about 1,000 feet below, and extending some 7,000 feet into the Gulf. By cutting through a long natural bar, the largest vessels have been permitted to enter into a smooth and completely land-locked harbour. The long stretch of brick and stone wharves, extending across the harbour front, although found to be insufficient either in number or capacity to-day, owing to the vastly increased proportion of this Port's business, show how considerably the Central Railway Co. has improved Tampico, and this may be regarded as an earnest of what its great enterprise and vast resources will still further effect in the immediate future.

The principal imports handled at Tampico comprise timber (chiefly cedar-wood), ixtle, fustic, hides, sarsaparilla, honey, silver, lead, copper and other commodities. The mechanical facilities for handling these articles are both numerous and thoroughly up-to-date, while the systematic manner in which the Port's business is arranged generally can alone prevent congestion, a drawback from which it has suffered acutely in times past.

The increase in the Port's shipping I have already referred to. I have seen as many as 5 or 6 ocean-going steamers with their cargoes waiting in mid-channel off the Port for an available berth. These steamers were variously laden with steel rails, coke, coal, and structural iron, and such cargoes continue to arrive at Tampico with increasingly large consignments at the time of writing. In one case, a steamer was in

WHARF AT TAMPICO built by the Central Railway for the Mexican Government.[1]

TAMPICO by moonlight, unloading steamer.

port for 18 days before its cargo could be handled, wharf space and berths, as well as labour, alike being at a premium.

Three different railroad lines traverse the State, the Mexican Central being the most important, the other two being the Mexican National and the Monterey and Gulf. The latter crosses the State diagonally from west to north-east, while the former traverses it twice, first in the north-west and again in the north. I look for a considerable business development in railway construction in the State of Tamaulipas, as the State Government offers every facility and encouragement to this as well as to all other kinds of legitimate enterprise.

The Tampico and Tuxpan canal has been under construction for the past four years, and its approximate cost, when completed, will be nearly $1,000,000. It stretches from the Panuco river at Tampico into the great Tamiahua Laguna, through Lakes Mojarras and Tampamachoco, and thence into Tuxpan river. From Panuco to the Tamiahua Laguna the route of the old Chijol de Megana canal is followed; the dredging of wide passage-ways through the Laguna and lakes has been completed, and all that now remains of the construction work is the finishing of about 2½ kilometres leading into Tuxpan river. A goodly portion of the canal has been in use for some months, and by the time these lines appear in print steamers of light draft will be plying upon it between Tampico and Tuxpan without any necessity of entering the Gulf. The canal is of sufficient width at all places to admit of the passage at one time of several steamers.

Tampico as a place of residence possesses some attractions, the climate, in spite of the heat, which is found very trying at certain seasons of the year, being far from unpleasant. There is a village some few miles from Tampico known as La Barra (The Bar), where there is to be found one of the finest sea beaches in the world and a magnificent rolling surf. The warmth of the atmosphere enables one to indulge in sea-bathing all the year round. Pavilions and dressing-rooms are now being erected, and trains are run several times a day between Tampico and La Barra, where is also established the fine hospital belonging to the Central Railway Co., a most excellently managed and comfortable institution.

The capital of the State, Ciudad Victoria, is in part typically Spanish in its architecture, while it is wholly so in the peaceful solitude which broods over it during the greater part of the day. Life passes pleasantly enough in this secluded town, free from excitement and turmoil, and where, in their agreeable absence, people live to a ripe old age. There are no buildings which call for any particular comment, except, perhaps, the Government Palace, which is an excellent specimen of solid but unpretentious construction. The whole population of Ciudad Victoria does not exceed 11,000, the town being situated 449 metres above sea-level.

The Governor, Señor Pedro Argüelles, is regarded as one of the most progressive and energetic officials in the Mexican Republic. Although he has never visited England, he is intimately acquainted with English history, methods and persons, and he both speaks and writes it perfectly. Imposing in personality, he is a delightful talker and a great student. His excellency's knowledge of European and American matters generally is profound, and his local experience is imparted in a singularly agreeable, unreserved and unostentatious manner.

Before he became Governor of Tamaulipas, Señor Argüelles was Chief of the Customs Department at Laredo, the border town and port of entry between Mexico and the U.S.A. In this capacity he made numerous friends among the various travellers passing to and fro. The Governor was born in Matamoros some 60 years ago, and it may be truthfully said that there is scarcely a year of his useful life which he has not devoted in some way or other to the best interests of his country. I have referred to the encouragement which his government has afforded to all kinds of enterprises, and I may perhaps draw particular attention to one project which has long occupied his attention, and that is a new railroad to be constructed from Ciudad Victoria, directly east, to Barra de Soto la Marina, located on the Gulf coast. This would open up an additionally rich section of the country, and unquestionably prove of great value to the State. It was Governor Argüelles who materially assisted the Mexican National Railway in completing their Monterey branch to Matamoros, while he is no less generous in his support of the

St. Louis, Brownsville and Mexico Railroad, from Matamoros to Tampico, which, when completed, will add 300 miles of railroad track to the State's equipment. Due greatly to Governor Argüelles' influence, many thousand acres of rich and fertile agricultural land are opening to-day to settlers, and I know of no finer opportunity for sound land-investment than in this particular State. Its virgin forests contain untouched fortunes in hard and soft woods, such as fir, poplar, india-rubber, mahogany, white, red and yellow pine, ebony, white and black oak, cedar, and an immense variety of fine woods for cabinet work.

A gem among the many beauty spots of Mexico is Tamasopo, situated upon the scenic line belonging to the Central Railway, between Tampico and San Luis Potosi. One passes a succession of majestic cañons, the grandeur of which it would be difficult to depict, let alone exaggerate. The precipitous sides are covered from the top to the bottom with the densest and most verdant of undergrowths, packed so close together that they offer an impassable barrier to all but the smallest creatures. Even in the driest season these verdure-clad heights are vivid in their greenness, and foaming cascades, small but ever-fed, are to be seen splashing from rocky ledge to ledge, and losing themselves in a multi-coloured spray far down in the green depths below. Over and about them flit countless gorgeous butterflies, some as large as sparrows, and representing not alone every colour in the rainbow, but every conceivable combination of colours, tints, and shades.

The traveller who cares to pause on his way and descend into the tempting, cool depths of the cañon can readily do so if he carefully follows one of the numerous trails which exist, and which can be seen faintly winding up and down, and across and across the mountain-sides. It is a long and rather a tiresome descent, on account of the dense foliage on either side and sometimes overgrowing the trail; but what an abundant reward is that which greets one upon accomplishing it! Many of the trails lead to dark and deep pools, and no doubt have been made from time to time by animals coming down to drink. What exquisite tints are those reflected in these silent, shimmering waters—the blackest of greens, the lightest

of emeralds; the blue of the sky, the browns of the dying leaves; the reflection of some multi-coloured bird or butterfly flying above; the pale lemon hue of the half-crescent moon just creeping across the sky. A perfect kaleidoscope of colour, but all so soft, so ethereal, so transient, that it is like a dream picture which the faintest ripple will dispel.

There is life down there in those depths, too; for as one looks a big brown fish bounds into the air, turns a somersault and once more disappears. You catch just a glimpse of his red eye and his silvery breast, of his shimmering armour and forked tail. After his plunge, the pool loses all its beautiful colouring, and the mystic charm has gone.

The financial affairs of this State are worthy of some comment. There is no longer any public debt, this having been paid-off under Governor Argüelles' rule, while he has also succeeded in bringing up the revenue of the State sufficiently to meet all expenses provided for in the budget. The Governor's knowledge of political economy, combined with his shrewd business ability, are responsible for the highly successful condition of affairs which the State now enjoys.

In my chapter on "Sports" will be found full reference to the tarpon-fishing for which the Port of Tampico is famous.

The middle territory on the west coast of Mexico, known as Tepic, is but little noticed by the ordinary visitor to the Republic, yet it contains some of its most interesting scenery. Tepic was formerly considered the 7th Canton of the State of Jalisco, and was created a Federal Territory on December 21st, 1884. Durango and Sinaloa bound it on the north and north-west, Jalisco being on the east and south, and the Pacific Ocean on the west. The extensive range of mountains known as the Sierra de Alica and the Sierra del Nayarit traverse it from end to end, sloping down to the very edge of the coast. Several fine but unnavigable rivers course through its tropical valleys, such as the Rio Grande de Santiago, which also empties itself into the Pacific Ocean. Mountain and plateau, hill and valley, forest and stream, are the main characteristics of Tepic's unsurpassed scenery, while a quite tolerable climate, varying from the temperate

on the table-lands to the torrid on the coast, offers inducements to settlers, who, however, must be prepared for every variety of insect life. The few exploring parties which have set out with the idea of testing the mineral resources of the territory have been highly encouraged by what they have found. Some of the most promising silver deposits have been discovered in the mountains, and Indians tell stories of great riches having been discovered and secured there in times past. The mining region of Tepic will be found more fully referred to in another chapter.

The main industry of the Territory is agriculture, and the productions under this head are both numerous and abundant, resembling in variety and number the productions of other great agricultural States, such as Oaxaca, Puébla and Veracruz. In the valleys, of which, as I have said, there are several, no more fertile and productive soil is found than that of Jala, and where, I am told, the planting of one bushel of corn yields five hundredfold. Thousands of acres of rich land are to be met with, the crops embracing cereals, cotton, tobacco, sugar-cane, coffee, beans and rice, while wheat and other cereals grow especially well in the districts of Ahuacatlán and Tepic; rice flourishing at Compostela, Tepic and Ahuacatlán, and San Blas; cotton in Acaponéta and Santiago Ixcuintle; while coffee, tobacco and sugar grow to perfection all over the Territory.

Official authority says that there are some 50 different plantations, out of which 7 are devoted exclusively to the cultivation of cotton, 4 to coffee, 22 to sugar-cane, and the balance to wheat, barley and other grains, as well as to cattle raising. In regard to coffee grown in the Territory of Tepic, New York experts have pronounced it to be of the very finest, while some samples sent to Hamburg were valued at a price only exceeded by that of the best Brazilian coffee, and higher than that of the famous Cordóba growth and the berry from the eastern coast of Mexico. It is in Compostela that the finest coffee is now grown, the estates being in a zone parallel to the ocean, and at an elevation of 800 metres.

Central America takes practically all the tobacco which is grown in this Territory, somewhere about 1,000,000 kilograms annually. There are many thousands of rubber-trees

which grow wild in Tepic, and one would imagine that it offers suitable opportunity for rubber plantations, but none as yet have been undertaken. Cotton, again, of an excellent quality flourishes on the warm lowlands, and yields so abundantly that one year's crop, it is claimed, repays the loss of five years' constant failure. As yet, however, tobacco, in spite of the soil's great natural richness, must be considered as part of the undeveloped resources of the Territory, but as offering almost unrivalled opportunities for the investment of foreign capital. What capital is found in the various factories which exist is purely local. There are several woollen factories, which turn out a good quality of blanket, but the methods in vogue are primitive, as is life generally in Tepic.

One of its greatest drawbacks is the absence of railways, there not being a single line of track in the Territory. San Blas is the principal Port, and it has a considerable maritime business with the whole stretch of Pacific coast of both North and South America. Several lines of steamships and sailing vessels touch at this port annually, while the coast-wise trade is of great importance and continually increasing, San Blas being recognised as a good distributing and commercial centre. The wagon-road leading from the Port to the capital, Tepic, on to Ahuacatlán and Ixtlan and proceeding thence to Guadalajara, in the neighbouring State of Jalisco, is maintained in a fairly good condition; but the other highways are not at all good, the majority of them being little better than mountain trails. I may mention that a railway is proposed from Tepic to San Blas.

The entire population of the Territory in 1895 was 148,806, while, in 1904, it had only increased to 150,098. As the total area of the Territory is 28,371 square kilometres, it will be seen that the proportion of inhabitants is 5.29 per square kilometre, which, although low, is somewhat better than Campeche with its 1.84, or Coahuila with 1.79, or Chihuahua with its 1.40.

During the past few months the City of Tepic has been fortunate enough to witness the installation of an electric light and power plant which furnishes motive power to a large number of industries. It is owned by one individual, Señor

A. Aguirre, one of its most prominent citizens. Seven hundred kilowatts of power are generated, but it is intended very shortly to increase these to over 1,000.

Last year a serious disaster overtook the Territory of Tepic in the form of a flood by which many hundreds of thousands of dollars' worth of damage was done. The Federal Government promptly came to the rescue of the sufferers, subscribing the liberal sum of $10,000, which was considerably added to by private charity.

CHAPTER LI

STATE OF VERACRUZ: Spanish invasion—Agricultural value—Cattle-raising—Mining conditions—Industries and trade—American capital invested—City of Jalapa—Interesting streets and buildings—Freedom of Veracruz City from fevers—Port of Veracruz—Great improvements—John Hawkins and the Governor—Modern City of Veracruz—Some new buildings—Tramway service—Pavements—Government buildings—Educational advantages—Governor Dehesa and education—New Hall of Justice—Scenic surroundings—A remarkable waterfall—Orizaba—Hotel accommodation—Notable factories.

EVER since the Spaniards came to Mexico, Veracruz has been regarded as the principal State next to that containing the Capital; and although to-day it possesses rivals in regard to its port facilities, it still remains one of the most prominent departments of the Republic. In regard to actual size it compares unfavourably with many of the other States; but, on the other hand, its population is largely in excess of those parts of the Republic which are equal to or larger than it in size. Occupying its 75,863 square kilometres there are to-day nearly 1,000,000 inhabitants, which give it a proportion of nearly 13 to the square kilometre.

The State occupies a narrow strip of land, which rises gradually from the long, low coast-line to the crest of the Sierra Madre mountains, and it may be regarded as one of the most picturesque and productive regions of the Union. It claims two famous volcanoes, Orizaba and Citatepetl, while its mountain ranges include the famous Maltrata, the Alcucingo, Oxocupan and Zongolica. In among these majestic mountains are found some of the most fertile valleys in the world. It is not difficult to understand how the reputed richness of Veracruz sent home to Spain attracted hundreds of greedy adventurers in the early days of the Spanish conquest,

VERACRUZ.—Principal thoroughfare in the City of Veracruz.

for it is veritably a land of milk and honey, at least in outward appearance.

Agriculture is carried on to advantage, and there are to-day some 750 plantations, many of which are doing extremely well. Of these, 23 are given up to cotton, 98 to coffee, 106 to sugar-cane, 189 to cereals, 3 to fruit, 45 to tobacco, 8 to woods, and 279 to ranches. Among these stock-raising takes first rank in actual annual returns, after which come cereals and then sugar-cane products. The value of the cattle raised and sold in the State of Veracruz cannot be far less than $25,000,000 Mex. (£2,500,000) per annum. For here is situated the great Huatusco Potosina, a great cattle-raising region, consisting of a succession of rich valleys separated from one another by verdure-covered terraces or hills, increasing in height as they recede to the westward. This slope, with its numerous smaller valleys, receives the moisture of the breezes from the Gulf in the form of rain during the summer months, and in dew during those of autumn and winter, rendering them practically free from frost, drought, or excessive heat. Stockmen declare that this natural pasturage land is as fine as any in the world, and pasturage may be depended on all the year round, especially the South American and African grasses, Pará and guinea, developing and flourishing remarkably well here. Some 400 American Colonists, from Texas, have recently settled in the State of Veracruz, and intend to go in extensively for cotton planting near Perez, having purchased several thousands of acres of land in that district.

The present condition of mining in Veracruz may be regarded as embryotic, although several rich mines are included within the borders. The principal minerals are gold, silver, lead, iron, mercury, copper, coal, petroleum and asphalt, while both marble and precious stones, such as opals, agate, lapis-lazuli and amethysts, are found. The number of mining claims registered does not at present exceed 50, covering about 700 hectares, and out of the 4 or 5 mines in operation the total output does not exceed $50,000.

Possessing, as it does, the most important port in Mexico, although that of Tampico now runs it very closely, it is only natural that the trade returns of Veracruz should be very

large. Since the important harbour-works which have been undertaken and completed at Veracruz, the traffic to and from this port has greatly increased, and on several occasions a glut of imports has resulted in a heavy congestion. As an instance of the supremacy still claimed by Veracruz as a Port of entry, I may point to the figures of duties received in the month of March last (an average month), when out of a total of $4,558,917 Veracruz received $1,517,918 and Tampico took $895,918. Veracruz may be regarded as the distributing point of merchandise from and to all parts of the Republic, and the most rapid communication by rail and water with the interior is in operation. While this has proved an excellent thing for the shippers, it has meant a great deal of injury to the local merchants, who, instead of now supplying various parts of the country, as they did formerly, find that their trade is limited to strictly local requirements.

The industries of the State are many, possessing as it does several cotton, woollen, saw and paper mills, as well as factories for chocolate, wax-matches, soap, candles and cigars, in addition to several foundries. Petroleum-refining has also of late been introduced, an American company importing crude petroleum, and refining, as well as manufacturing, nearly all products of that article. There are a number of cigar-manufactories which seem to do a thriving trade, exporting their goods to all parts of the world. In the meantime, I understand that State concessions have been granted to several American capitalists, who propose erecting refrigerating, packing and tanning plants, with which they expect to do a prosperous business.

The sugar industry of the State is practically stationary, although its manufacture promises to assume large proportions as soon as further capital is introduced, and new machinery installed. As it is, many plantation companies are working with antiquated machinery, provided by foreign capital, mainly American; but others are planting wide acreages of sugar-cane and importing modern machinery for both sugar-making and distilling purposes. A year or two ago shipments aggregating 16,500,000 lbs. of sugar were exported from Veracruz, the greater part of which went to

England, the U.S.A. taking but 1,000 tons. Veracruz in other directions, however, does more business with the U.S.A. than with any other country, except in regard to its retail lines of commerce. American enterprise and American capital have wrought a great change in the sleepy old city of Veracruz, and no doubt both are destined to effect an even greater alteration ere long. It must be admitted that the Port stands in need of such impetus, for while, as I have pointed out, its foreign import and export trade is of importance, the City itself remains almost exactly as it did in the Spanish days. There is not a single hotel in the City which can be called first-class; while it is only in the past few months that the authorities have undertaken the long-needed paving of the streets, substituting asphalt for the worn-out cobbles, which filled, and still fill, some of its principal thoroughfares. Undoubtedly Veracruz might be made an agreeable seaside resort for a portion of the year, when the "Northers" do not blow, being but 12 hours from Mexico City and reached by night-journey on the Mexican Railway, which provides first-class sleeping accommodation, and lands its passengers at either end of the journey in excellent scheduled time. Much, however, remains to be effected before Veracruz can be an agreeable place of residence.

The capital of the State is Jalapa, the seat of local government, and a very much more charming and interesting place in which to reside. Jalapa is essentially "old Mexico," and its ancient structures have undergone little or no modernising. It was a place of importance when Cortés landed, although it was then but an Indian town; but it was on the main road that led from the coast to the capital, and the place still bears impress of the numerous Spanish hidalgos who permanently resided there. Apart from the charm of the city itself, the surrounding scenery is unsurpassed in its grandeur.

Jalapa was not always the capital of Veracruz. The city of that name was formerly the capital, and remained so until February 1824, when the first State Congress assembled at Jalapa, which thus virtually became the capital. In 1832 the seat of government was again transferred to Veracruz, and remained there until 1834; but the next Congress met at Jalapa in 1835, and declared that city the residence of the

Government, which it continued to be until 1841, when the Assembly was dissolved and succeeded by another that met at Veracruz. The Assembly of 1843 sat there also, but in 1845 the Constitutional Assembly convened at Jalapa, and the seat of government remained in that city until 1853, when, under the dictatorship of General Santa Ana, all the State offices of the Government were removed to Veracruz. In 1861 Legislature decreed Jalapa to be the seat of government during the foreign war that threatened the country, and after the Republic was resumed in 1867 the Government was sent back to Veracruz, which once more declared it to be the official capital. In 1871 Orizaba became the seat of government for a short period, but it was restored to Jalapa the same year, which remained the official capital. In 1877 it again went to Veracruz, and for the following 8 years sat at Orizaba. In January 1885 the Constitutional Government was once decreed to sit at Jalapa, and it has remained there since.

At one time Veracruz bore an evil name on account of the ravages of yellow-jack, and it will probably be very difficult to convince some people to-day that it is practically free from that scourge. Nevertheless, while it must be said that the disease has not been completely stamped-out, there occur now but few cases in Veracruz compared with other parts of Mexico. The population of the city is between 33,000 and 40,000, and according to the latest census, the death-rate is considerably less than that of the City of Mexico, which is situated, as before mentioned, 7,350 ft. above the sea. As a matter of fact, it seems that more people die of tuberculosis in Veracruz than of yellow-fever. In 1905 the total death-rate was 42 per 1,000, mounting to 60 in the summer months and dropping to 29 in the winter. Of these deaths 50 per cent. occurred among children under one year of age, 25 per cent. were victims of tuberculosis and 30 per cent. of diarrhœal diseases. It seems remarkable that the term "yellow-fever" should inspire so much terror in some minds, while tuberculosis, or, to give it its better-known name, consumption, awakens but a passing thought. Yellow-fever is now so thoroughly understood by medical men, that whereas 70 per cent. represented the proportion of deaths 10 or 15 years ago, this has now been reduced to something like 10 or

15 per cent., so that the terrors of the scourge, however well founded formerly, now seem to be so no longer, and Veracruz has been labouring under an unjustifiable suspicion for some years, and one which it is as well to remove.

Of Veracruz and its fascinating history one could readily compile a volume, and then scarcely do it full justice. Usually this is the first place in Mexico seen by the large body of tourists who travel to the Republic by sea, since all the Hamburg-American, British and American steamers call at Veracruz, which affords a charming preliminary glimpse of tropical Mexico. It was here on a Good Friday, in the year 1519, that the venturesome Cortés landed, and in consideration of its reputation as a place of great wealth it was piously named Villa Rica de la Santa Veracruz. The Spaniards were always fond of long and religious names, and rarely abbreviated them either in their writings or their conversations.

It was here that the great Francis Drake took his first lesson in piracy, and it would be almost impossible to enumerate the different times in its stormy career that this ancient port and town have been bombarded, besieged and sacked. Upon four different occasions the site of the city was changed, and it was only in 1600 that the location was definitely decided by the King of Spain himself, which is retained to this day. Veracruz was well enough known to John Hawkins, one of Queen Elizabeth's loyal but distinctly dishonest sea-rovers, and it was this great mariner who captured and took possession of the Island of Sacrifices (Isla de Sacrificios) and the then small fort of San Juan de Ulia. Hawkins is credited with being a great rogue, but a very polite one. After he had captured Veracruz he called in great state upon the Spanish Governor, and apologised for the stern necessity of war and its unpleasant consequences, observing that his possession of the city "was a mere matter of form." Anyhow, he seems to have deeply and most favourably impressed the Spanish Governor, who has left upon record his opinion of John Hawkins, whom he describes as "muy gran soldado y marinero y en su proceder muy hidalgo."

Modern Veracruz is picturesque in some parts, but squalid in others. Besides the intense heat which prevails there

almost the entire year round, the blowing of the "Northers," or strong North winds, makes residence there very trying during the winter months. These winds come up with great suddenness, but timely warning is given by the meteorological department, so that shipping can take the necessary precautions. Sometimes, however, the warnings are not given sufficiently soon, or they are disregarded, with the consequence that a considerable number of boating accidents take place every year, and many individuals are drowned.

The building of a port and docks at Veracruz formed one of the earliest undertakings entered upon by the Mexican Government under the presidency of General Porfirio Diaz. It was in May 1881 that the contract was entered into with the city authorities of Veracruz, the contract being awarded to a French firm of engineers. Five years afterwards the contract was cancelled, little or nothing having been done in the meantime. Another contract was made with a Mr. Cerdan, but again it fell through. Then it was that the firm of British engineers, S. Pearson and Son, Limited, came upon the scene, they having already shown their worth by the construction of the great drainage works of the City of Mexico, and which have effected such a drastic change for the better in that delightful Capital.

Messrs. Pearson took over the works at Veracruz on April 26th, 1895, and from that day really commenced the regeneration and rehabilitation of that port. It was on March 16th, 1902, that the Port and Harbour works were completed.

The same firm of eminent engineers are responsible for the excellent water system of the city, the *per capita* supply being 225 litres per day for a population of 35,000, the total cost of the installation having been $2,250,495 (Mex.). The sewerage system is no less complete, and conforms to what is known as the separate water-carriage process, and includes a main-sewer, secondary sewers, and all necessary subsidiary sewers, aggregating about 55 kilometres in length. The installation of this system cost a further sum of $1,713,998 (Mex.).

The City of Jalapa is built principally of stone and cement; its streets are exceptionally wide and remarkably clean, although somewhat hilly on account of the city's location.

This year has been opened the magnificent new building,

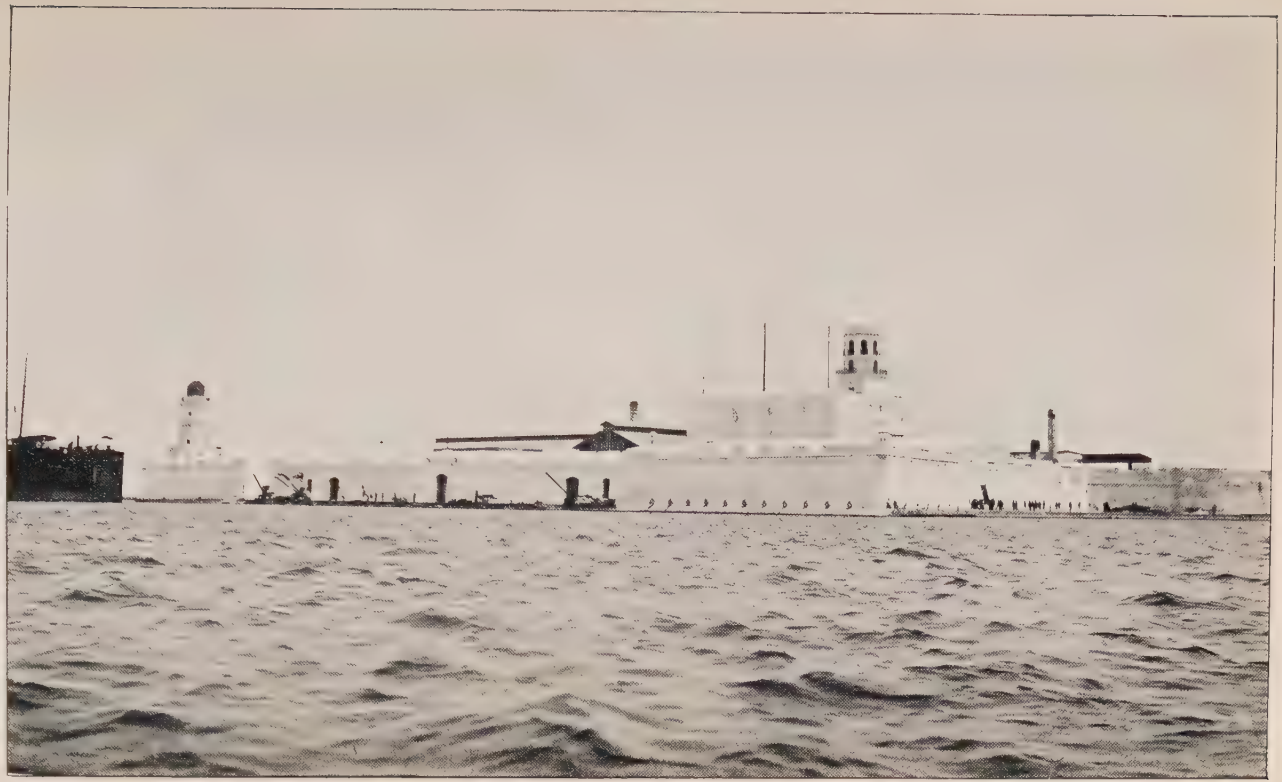
adjoining the Government Palace, devoted to the administration of the law. The Palace of Justice, which has occupied several years building, is a stately but not very spacious edifice, the Courts being rather small, from a European standpoint, but admirably-planned from an acoustic consideration. The entrance hall is of the finest white marble, all the doors and woodwork are of mahogany, and the fitments of beaten copper and bronze. Light and air have been well provided for, while the various offices and judges' apartments are especially well fitted. Electric illumination is everywhere installed, and the whole building is a model of good taste and refined elegance.

Railway communication throughout the State of Veracruz is exceptionally good, for not only is the State admirably served by the Mexican Railway, but the Interoceanic, the Veracruz and Alvarado, the Central (in the north), the Cordóba and Tuxtepec, and the Veracruz and Pacific all contribute to its means of internal and external communication.

At Jalapa, capital of the State of Veracruz, is located the handsome and commodious Escuela Preparatorio, established in 1843 by Antonio Maria de Rivera, and rebuilt by the State Government in 1904. It is a luxurious and yet a thoroughly practicable educational establishment, which, for completeness of detail and excellence of arrangement, has no superior and very few equals in the Republic. There is at present an average attendance of 100 pupils, but the building has ample accommodation for twice that number. As in the case of all Governmental educational establishments, everything—instruction, uniforms, books, stationery, etc., etc.—is provided free. The school hours are from 8 to 12 a.m. and from 3 to 5 p.m. There are no Sunday classes and no religious instruction. A notable feature of this school is the library, which contains some thousands of well-bound books, among them being a representative collection of English works, such as those of Smollett, Fielding, Shakespeare and Thackeray. I understand that these works are among the more largely read; but some bound volumes of English illustrated newspapers are also in demand. The anatomy, chemistry and natural history departments are filled with every description of modern

apparatus and models, entailing a considerable outlay, and it is satisfactory to add that all these studies are pursued with avidity and interest by the majority of the pupils, who display remarkable aptitude in their assimilation of the technical details. The State of Veracruz has several other notable scholastic establishments, mainly the result of the splendid educational enterprise of the present Governor, Señor Don Teodoro A. Dehesa, who has expended large sums of money out of his own pocket in the furtherance of the cause of education, which he has so much at heart. Last year the State Government issued a notable map of Veracruz, which cost no less a sum than $80,000 (say, £8,000).

Apart from its importance as an industrial centre, the other most prominent town in the State of Veracruz, namely Orizaba, is a singularly-attractive resort for jaded City residents and tourists. It existed long before Cortés came (in 1533), who liked it so much that he remained there for a considerable time. The town is on the edge of the hot country, but not quite in it. Its situation in a small valley entirely surrounded by lofty mountains is charming, and one can well understand the infatuation which it had for Maximilian. It is only 4,000 ft. above the sea-level, and thus offers a complete change of atmosphere to that of Mexico City, which is 3,349 ft. higher. The surroundings are semi-tropical, and refreshingly green all the year round. I have seen the place both in the winter and in the summer months, and have noticed scarcely any difference either in the colour of the verdure-clad mountains and environing coffee-plantations, banana-groves or sugar-fields, or in the temperature. Some of the most magnificent scenery in Mexico may be seen within a quarter-of-an-hour's drive from the town of Orizaba. I refer to the beautiful falls of the Rio Blanco, which, although utilised for generating the electric light and power works of the town, retain their original charm, which, one would say, simply defy all-destroying-man to deface or alter. The Escamela waterfall, although neither as large nor as impressive as some others found in different parts of the country, is both romantic and attractive. A short line of railway some 20 miles long is to be built out of Orizaba to a place called La Porla, the idea being to work the large timber forests which lie adjacent. The undertaking



VERACRUZ ISLAND AND PRISON of San Juan de Ulia, formerly La Isla de los Sacrificios.

is an American one, and is organised by capitalists of Guthrie Oklahama.

The hotel accommodation offered in the City is as yet somewhat primitive, but there is one fairly-comfortable hostelry, kept by a Frenchman named Leroy, and which is well-furnished and offers a tolerable *cuisine*. The situation on the main street, however, is against it, on account of the noise of traffic and the somewhat defective drainage.

CHAPTER LII

STATE OF YUCATÁN: Great henequén industry—Unsubdued Indians—Lack of rivers — Mineral springs — Agriculture — Sugar — City of Mérida—Trade—Exports and imports—Financial depression—Fall in prices of henequén and increase of local taxation. STATE OF ZACATECAS: Topographical situation—Rivers—State taxation—Cereal cultivation—Commercial importance—Mineral resources—Governor Eduardo Pankhurst—Anti-liquor legislation—State pawnshops—Education — City of Zacatecas — Scenic surroundings — Railway facilities—Buildings and cathedral—Historical associations.

OF late years the State of Yucatán has become one of the best-known of the Mexican provinces on account of its great production of the henequén plant, by means of which it has attained the distinction of being recognised as the greatest henequén-producing region in the world. The total area of this State is 91,201 square kilometres, and its boundaries are the Gulf of Mexico on the north, the Carribean Sea on the east, British Honduras and Guatemala on the south, and the State of Campeche on the west. The vast peninsula known as Yucatán is an immense plain, starting from the coast-line and rising gradually towards the interior to the height of between 150 and 180 feet. Bare towards the coast, the soil gradually becomes more fertile towards the north-east, while the south-east section is about as rich as one can find anywhere, abounding in virgin forests, filled with dye and cabinet woods, possessing as well some fine open stretches of land, eminently suitable for the cultivation of practically all vegetable species. One great drawback to this portion of the country, however, is the numerous tribes of still unsubdued Indians, known as "Yaquis," and who are as savage as they are untractable. For years the Mexican Government has been endeavouring to suppress these tribes, but it has only partially succeeded, the country being an exceptionally easy one for them in which to

hide themselves, and just as difficult for mounted troops to pursue them.

Although there is any amount of wild, rugged mountain scenery to be met with in Yucatán, the State is practically without rivers. The Lagartos, which is called a "river," is neither more nor less than a shallow arm of the sea, and is a curious mixture of both salt and fresh water. At no greater distance than 800 feet inland pools of fresh water spring up among the salt, but without intermingling with them, and these are called "Bocas de Conil," which Von Humboldt declared are due to the immense hydrostatic pressure from the interior of the earth. Visitors to the Windward coast may have met with some such springs there. Yucatán has also a large number of other mineral springs, which are variously known under the name of *aguadas*, *sartenejas* and *cenotes*, but all alike are formed of deposits of rain-water among the rocks or in reservoir-pools and cavernous cups, in which the water has collected.

Besides henequén, the resources of the State include a moderate amount of agriculture, such as sugar-cane plantations, tobacco and chicle gum. There are altogether in Yucatán nearly 900 plantations divided up into henequén, of which there are 350; cattle-ranches 227; cereals 160, and sugar-cane 95.

The City of Mérida is one of the handsomest and most commodious in the whole of Mexico, and contains buildings, parks and public thoroughfares which can only be matched by that of Mexico City. It is, moreover, an extremely agreeable city in which to reside, on account of its up-to-date character, and a very pleasant climate which prevails nearly all the year round. There are some 62,000 people to-day living in Mérida, and among them it would be difficult to find any really poor. In regard to railways, there are several lines, all exceptionally well-conducted. There are the Mérida and Campeche, 173 kilometres long; Mérida and Peto, 127 kilometres; Mérida and Valladolid, with a branch to Progréso, 78 kilometres; the Izamel 66 kilometres; and the Mérida and Progréso, 36 kilometres. Besides an excellent railway service, the Peninsula of Yucatán has a first-class maritime communication, which is carried on by means of

several American and Cuban Companies, while the Imperial German Mail, the Harrison line, the West India and Pacific Steamship Co., the Spanish Transatlantic Line, the Prince Line, the Johnston Line, and 3 Mexican lines call at Progréso. This latter is the principal port of the State, and ranks third in the Republic for its import trade. The number of vessels calling here annually amount to between 590 and 600, of which nearly 400 are steamers. The Mexican Government are contemplating expending a considerable sum of money upon the Port of Progréso in order to render it safe during bad weather, which it is far from being at present.

The United Railways Co. of Yucatán, which already owns the lines in that peninsula, recently acquired at a cost of $2,500,000 complete control of wharfage and bodega facilities at the Port of Progréso, by the purchase of the holding of La Antigua Agencia Comercio, and by which means the Company removes its only competitors in the wharfage and storage business. The United Railways of Yucatán is a purely Mexican undertaking, initiated by Mexican capital, and its 583 kilometres of railroad have been built entirely by Mexican engineers, and are operated solely by Mexicans. I understand that an American organisation recently offered $20,000,000 for the property and rights of the Railway Company, and that this was refused.

Trade in Yucatán is advancing by leaps and bounds, and since the official visit of President Diaz in February 1906, the attention not only of United States capitalists but those of the whole world has been drawn to this Province. The salvation of Yucatán has been the henequén-plant, which has helped to raise many of its citizens from poverty to affluence. A decade ago, the plantation-owners were nearly all in debt, with very little prospect of ever paying what they owed. To-day, they have not only discharged all their obligations, but have abundant cash in hand, and many rank as very wealthy.

On the list of Mexican Gulf ports, Progréso now stands high as regards export values. To the United States it sends millions of dollars' worth of raw materials every year, such as hemp, gums and hides, etc., and annually it receives goods

to the amount of $1,500,000 (U.S. Cy.) Yucatán is now exporting between 600,000 and 700,000 bales of sisal hemp, having a value of about $50,000,000 (Mex.); 96 per cent. of the raw product goes to the United States, through the ports of New York, Boston, Mobile and New Orleans. The manufactured article in the form of cordage, bagging and binder-twine is also exported, but a good deal of the cordage and bagging also go up the coast to supply the demands of domestic commerce.

On the other hand, Yucatán imports from the United States a fair amount of dry goods, although it is impossible to predict any advance, but rather a falling-off, in the value of this trade during the next few years. This may be accounted for by the fact that Mexico has begun to manufacture cotton goods of her own, mills in the Republic being continually increased both in number and size. Puébla and Orizaba, for instance, supply a great deal of the home demand, and my opinion is that the dry-goods trade with the United States, especially the white and unbleached cottons, will gradually die out.

There are several evidences of American enterprise to be found in Yucatán. Besides the Yucatán Gas and Electric Company, which is an American undertaking, backed by $200,000 (U.S. Cy.), and which appears to be doing a good business, there is an Artesian Well Company, also with a large amount of capital, and an enterprising American as its working head. A large number of planters and cattlemen owning property in the State are from the United States, the estimated value of their holdings being $2,000,000 (U.S. Cy.). The largest of these ranches is the property of the San Puébla Lumber and Land Co., which owns a tract of land containing 50 square leagues.

The great prosperity of Yucatán received a temporary check in the spring of this year. In the month of May last the long-continued drought, losses by fire, and stringent local money-market combined to bring about a large number of failures, several prominent firms, both in Progréso and Mérida, collapsing. The low price of henequén was mainly responsible for this state of affairs, the price having consistently dwindled since 1904, in which year it stood at 33.27 cents

per kilo, falling to 30.49 cents in 1905, and to 27.73 in 1906. Considering that henequén is the main source of the State's wealth, the heavy drop in prices was of serious import.

No State in the Republic has in its time attracted more general attention than that of Zacatecas, which, with a total area of 63,386 square kilometres, has a population of not far short of half a million, which gives it an average of 7.29 inhabitants per square kilometre. It has as neighbours Coahuila on the north, San Luis Potosi on the east, Jalisco and Aguascalientes on the south, and Durango on the west. The situation is on the high central plateau of the Republic, with considerably more mountain area than valley, and thereby rendered exceedingly difficult for transportation. Were it not for its mineral resources, of which I speak more fully elsewhere, Zacatecas would not be a particularly prosperous State, since agriculture is carried on with difficulty on account of the unfavourable topographical conditions of the country. The mountains are remarkable for their almost unbroken bareness and sterility, and the scenery round about is unattractive in the extreme. There are at least two important rivers, the Juchipila and the Nieves, which are respectively 230 and 225 kilometres in length, but while there are several other rivers of smaller dimensions, there are no lakes. As to the climate, the State possesses three different regions, the first between 1,550 to 2,000 feet above sea-level; the second from 2,000 to 2,400, and the third from 2,400 to 3,000. There is an abundant rainfall throughout the State, and the winds which usually blow from the west are often very cold.

The principal sources of the State's revenues are derived from taxes on country and city property, business houses and mines, the balance proceeding from sources of less importance, such as telegraphic and telephonic services, both of which belong to the State. The value of rural property is estimated at $18,713,268, consisting of 326 estates aggregating a total value of $13,308,302, and containing 5,443,958 hectares. Of the estates there are some exceeding a value of $5,000 each; there are others also which contribute substantially to the

State's resources, consisting of some 950 properties, each of a value of $1,000 or less, and aggregating a total value of $1,862,604. These comprise an acreage of 390,192 hectares.

The cultivation of cereals is carried on where the generally unkindly nature of the soil will permit. The cereals include corn, beans and wheat. Several haciendados go in extensively for cattle-raising, paying particular attention to the improvement of their herds and crossing them with foreign breeds. Horses, mules, sheep and goats are also reared, with more or less success, while in Juchipila, named after the river which courses through it, the principal product is sugar-cane, which is converted into piloncillo and also alcohol, the latter being one of the principal products in the district of Piños, where it is obtained by a system of evaporation from the maguey plant. In the district of Mazapil several factories for the manufacture of rubber from the guayule plant are undergoing construction, while some cotton, woollen and other factories are already in existence.

Commercially speaking, Zacatecas is one of the more important of the Republic's centres, the annual trade being estimated at between $40,000,000 and $43,000,000, of which imports represent $16,000,000, exports $19,000,000, and local trade the balance.

Two principal factors in the government of this State under Señor Eduardo Pankhurst are education and an unrelenting campaign against the use of alcohol. In regard to the first, an admirable system has been introduced, the schools not only being well attended, but presided over by a body of exceptionally competent instructors. A sound professional instruction is given, which includes courses for lawyers, physicians and engineers. Scholarships are established, and a limited number of pupils are sent to Mexico City to study for professional careers. The State Government is very anxious that the remotest and smallest places in the territory shall derive benefit, and to that end the Legislature has increased the amount of the salaries of teachers, and created special awards for merit and industry among them. I visited a great many of the educational establishments in Zacatecas, and found these without exception well conducted and well attended.

Among the principal educational institutions are the Institute of Science for preparatory courses, two normal schools for professors of both sexes, 361 primary schools, with 357 professors and 217 assistants, while the average school attendance is 18,424 pupils. The amount expended upon public instruction amounts to 34.15 of the State's annual expenses, while only 13.34 is devoted to public safety (police).

Although, as I have said, one of the principal resources of the State has been and still is the alcohol which is made there, the Governor is against any increase in the use of it among his own people. He has introduced both repressive and preventive methods against inebriety, and the authorities punish severely those who indulge too freely in the use of liquor, while steps have been taken of no less stringent a nature with regard to schools and colleges.

Governor Pankhurst has joined hands with the former Governor of Chihuahua, Señor Creel, now ambassador to the U.S.A., in his campaign for the suppression of pulque-drinking, and he has met with a great deal of success, although his efforts are by no means exhausted or abated as yet. In order to facilitate the abandonment of pulque-drinking as far as possible, a completely new water-system has been introduced of late into the City of Zacatecas, which had hitherto proved a very difficult problem to solve owing to the great altitude of the city, which lies 8,200 ft. above sea-level. Under the same enterprising government, preliminary steps have also been taken to introduce an electric system, which will be available, no doubt, for the mining industry of the State should it require it. The industry has met with many drawbacks and disappointments during the past ten years or so, but the Governor firmly believes that a few years hence it will again revive, and the State's value as a mineral-producer be amply demonstrated.

The Governor of Zacatecas, Lic. Eduardo Pankhurst, is the son of an Englishman long settled in Mexico, and an advocate of some eminence. His main interests have been and are centred in education, and by this means he hopes to raise his State to a much higher position in the Republic. Under his administration it has already advanced considerably.

Among other innovations to which reference may be made

ZACATECAS. Principal street in the City of Zacatecas showing cathedral of Nuestra Senora de la Asuncion.

OAXACA.—Church of La Soledad, Oaxaca City.

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are the establishment by the State of 20 pawnshops with a capital of $128,000, which are producing gross receipts of $30,000. At these establishments the poor people of Zacatecas can obtain grants of money on goods at a very low rate of interest, and they can redeem them without any of the difficulties or exactions met with in similar establishments in other countries.

The City property represents a value of $10,424,244, and of this sum public State buildings represent $962,744, the balance being private properties which yield the owners an annual rental of 10 per cent.

The City of Zacatecas is approached from the valleys by a series of long and sinuous climbs, the track winding tortuously around and around a lofty hill until its summit is finally reached at a height of 8,000 ft., and the first glance of the picturesque city that one obtains is in the form of a huge tower-like chimney, belonging to the local smelter. The train then descends by its own weight into the valley in which the City of Zacatecas is built. At present it is devoid of much comfort, the hotels being of a very poor nature, and the methods of locomotion, by means of the antiquated horse-car, both slow and inadequate. The chief charm of the city undoubtedly lies in its ancient buildings, especially the Cathedral, which is one of the finest in Mexico. In fact, the city contains an enormous number of churches, most of which are worth close inspection, and many among them possessing associations of great historical value. The city has been attacked and pillaged on more than one occasion, and when the brutal Dictator General Santa Ana took it against the brave but fruitless defence of Governor Don Francisco Garcia in 1835, the inhabitants were inhumanly butchered, and a greal deal of wilful damage was done to the public buildings, the Cathedral not excepted.

CHAPTER LIII

Agriculture—Primitive methods—Government support—Practical suggestions—An example of profitable farming—Agricultural States—Their chief products—Coffee-growing as an investment—Cost of planting and profits made—A model Veracruz coffee plantation—Annual production at Monte Blanco—President Diaz as a haciendado.

"Blessed be agriculture—if one does not have too much of it," declared Charles Dudley Warner; and certainly the Mexicans are not likely to suffer from a plethora in this direction. It is unfortunate that agriculture, instead of being the first and most remunerative industry of the Republic, has hitherto taken second place to mining, a fact which is remarkable, considering the marvellous fertility and productiveness of a great portion of the soil. There are two causes which account for this: first, the lack of labourers, secondly, the almost childish persistency with which the Mexicans adhere to primitive methods, while the lack of sufficient internal communication has also played a part in the neglect of opportunity up to now. The mountainous and broken character of the country has, to a great extent, proved an obstacle to rapid, easy and economic transmission of produce, while it has also hindered the permanent currents of traffic either by land or by water, thus depriving the agriculturist of advantages of natural irrigation in certain regions, which are, for this reason, still arid and unprofitable.

The Government of Mexico has, nevertheless, shown a pronounced and most commendable interest in improving the agricultural conditions of the country, and during the whole term of the Diaz régime special attention has been given by the Department of Fomento to encourage this industry among the people. It has sought at the expenditure of both time and money to disseminate among the agricultural classes

information tending to educate them, to teach them improved and scientific methods of cultivation, irrigation, fertilisation and drainage of the soil, and to call their attention to those products which can be most advantageously cultivated in the different zones of the Republic. Besides distributing large quantities of seeds, shoots, and plants among them, the Department issues a monthly bulletin of agriculture, which, however, I fear is but little read or understood among the farming classes. The results, therefore, have been far from encouraging, and it is only the advent of the hustling American with his improved machinery and his insistent manners which can have any good effect upon the naturally unimproving character of the peon.

In many parts of the Republic the land is being tilled to-day as it was tilled 400 years ago; and it is surprising to observe how, in spite of these way-back methods, the soil produces so abundantly, reminding one of Douglas Jerrold's lines in the "Land of Plenty": "Earth is here so kind that just tickle her with a hoe and she laughs with a harvest."

The highest authority upon farming in Mexico has assured me that 50 acres devoted to general farming will keep a family comfortably-off, if the land is cultivated as any practical farmer cultivates it, putting in two crops of corn and beans each year reserving the garden-patch for immediate needs of his family, and pasture sown for his animals, say to the extent of 10 acres, leaving 40 acres to keep himself and two men busy gleaning, planting, cultivating and harvesting practically all the year round. If the land be located near a sugar-mill, 10 out of the 40 acres can be planted in cane for general crop, and ought to produce 50 tons per acre, or a total of 500 tons, which should be worth at the mill $9.00 (18s.) per ton. Deducting the expense of cultivating and delivering, say $6 (12s.) per ton, there would be a nett return of $1,500 (say £150), or an average profit of $150 (say £15) per acre. The remaining land might be planted in cotton or beans, both of which crops invariably command good prices.

The main products of agriculture in Mexico are coffee, sugar, tobacco, cotton, corn, maize, etc., concerning all of which I propose to say a few words, regretting that the space at my command precludes me from going more fully into

details as to their respective cultivation and value, which I should much have liked to be able to do.

Glancing rapidly through the facilities offered by the various States, I may indicate that the States of Morélos, San Luis Potosi and Veracruz afford excellent opportunites for the raising of coffee as well as fruits and vegetables, on account of their mild climate, with an entire absence of frosts; and in these States can be cultivated to the highest perfection oranges, lemons, pineapples, cocoa-nuts, bananas and tobacco. The State of Puébla, being in a cold district, is suitable mainly for the cultivation of apples, pecan, prunes, peaches and the grape-vine; but has suitable regions for oranges, lemons, pineapples and other classes of tropical products. Oaxaca, one of the richest agricultural places in the Republic, with a vast area of fertile land, a fine temperature and an abundance of water, can grow anything; while Guanajuato is also possessed of valuable land suitable for agriculture, and which, but for its great mining wealth, would probably have advanced to the front ranks of Mexico's agricultural States. Querétaro, on account of its climate and excellent topographical situation, is very attractive for agricultural life. Jalisco, however, is the premier State for agriculturalists, its lands proving suitable for practically every kind of product, while it possesses a Government which devotes a considerable amount of attention to the cultivation of the soil.

Nuevo León has become more of a mining and manufacturing State of late, although at one time it was a great agricultural centre; unfortunately, in conjunction with other frontier States it is subject to severe droughts, and no satisfactory system of irrigation has yet been instituted.

I have referred elsewhere to the splendid agricultural possibilities of the State of Tamaulipas when more fully populated, while in the States of Mexico, Colima, Michoacán, Morélos, Guerréro, Tabasco, Veracruz and Tlaxcala, agriculture may be pursued with almost certain encouraging results. It is necessary to bear in mind, however, that the vast territory of Mexico enjoys a variety of climate, which naturally controls agricultural productions; and it must not be assumed that every part of the Republic is suitable for tropical agriculture.

While it is quite possible to raise coffee, rubber, vanilla,

sugar, oranges, lemons and all tropical fruits on the same farm in some districts, wheat, oats, barley, apples, peaches, pears, and all northern fruits, if tried on the same ground, are apt to prove failures. In some tropical regions of Mexico an acre will produce $200, *i.e.* £20 nett, yearly, while in others it will not yield a centavo. The selection of the ground should be made with the utmost care, and only upon the advice of experts and those who have resided for many years in the country.

Particularly should intending settlers be warned from being influenced by the alluring and deceptive land-sharks of whom there has been produced an abundant and most dangerous crop of late, and concerning whose methods it is necessary to speak with great firmness and unequivocal denunciation. Several of these individuals during the past few years have been prosecuted, and at the present time there are at least three serving long sentences in the State prisons of America.

Under normal circumstances there is no surer or safer investment than coffee-growing in Mexico, and probably no better time to undertake it than the present. The ruling price of coffee to-day is higher than it has been for some years, and the old sources of supply, such as Ceylon, Brazil, Sumatra, Java, etc., are unable to keep up with the demand which is increasing throughout the world. Whereas coffee-lands may be found practically in all tropical countries, those producing the best quality of berry are few; but Mexico must undoubtedly be reckoned among them. The berry which comes from the State of Colima is considered the finest, and has been preferred by experts to that of Brazil. Up till now, Mexico has occupied the fourth place among the countries exporting coffee to the U.S.A., which is her best market, owing to the proximity of her territory and the special conditions of transportation. But Mexican coffee is popular elsewhere, as in Belgium, Germany, France and England, and as a result coffee-raising, which had been somewhat stagnant for many years, is now enjoying a revival, and quite a large number of old-time planters are restocking their lands with new coffee orchards.

Coffee is not indigenous to Mexico, it having originally been brought from the West Indies in 1790, and it was not

until 1818 that the plant was properly cultivated. To-day good coffee is raised not only in Colima, as already mentioned, but in Oaxaca, Chiapas, Guerréro, Jalisco, Mexico, Michoacán, Morélos, San Luis Potosi, Veracruz and Tabasco. The first recorded exportation of coffee from Mexico to the U.S.A. was in 1825, when it sent there 216,850 lbs., valued at $23,482 (gold), or at the rate of over 10 cents a lb. The annual amount to-day exported from Mexico to the U.S.A. is probably over 36,000,000 lbs., to say nothing of what is sent to European countries.

In conversation with a British coffee-grower of many years' residence in Mexico, I was informed that it does not cost more than 7 cents (Mex.) a lb. to raise coffee and put it on the market, while the grower receives 30 cents a lb. The 7 cents referred to, however, do not include interest charges on capital invested, or cost of superintendence; but merely cover cost of maintenance of trees, picking, curing and marketing crops. The profits on the business might be taken at at least 100 per cent. nett, even when ample deductions have been allowed for charges, superintendence, depreciation of plant, etc.

Veracruz ranks as one of the most successful coffee-growing States in Mexico. Among the more celebrated haciendas is that of the Monte Blanco plantation, in the Cordóba District, the property of Mr. Thomas Braniff. This plantation is a typical modern coffee hacienda, where only a high-grade quality of the bean is cultivated. Situated upon a natural terrace, somewhat higher than the average coffee-lands, but just low enough to escape the frosts, it seems to enjoy all the advantages which a coffee estate should possess. So healthful is the climate here that the owner has never any difficulty in attracting labour, and there is at all seasons of the year a plenitude of assistance available, which, I may say, is a very rare occurrence upon coffee-lands all over the Republic of Mexico, as it is both in Brazil and the Argentine. Under these favourable conditions, the picking of the berry is pursued scientifically, leisurely, and therefore much more profitably. Only those berries which are perfectly ripe are gathered, in place of stripping the entire branch, as is the custom in Brazil and in other places where labour is scarce, and hurried picking is

necessary. In Mexico I have often seen this practised, but upon the Monte Blanco estate the operation is conducted more carefully, the whole plant being gone over three times, which, if it means more labour, also ensures a better crop and less damage to the trees. In fact, no really high-class coffee can be treated in any other way.

There is a complete and very modern installation of machinery upon this plantation. It originally entailed a cost of $400,000 (say £40,000), and it has a capacity of handling completely and expeditiously the entire production of this large estate, comprising something like 2,000,000 trees. I am informed that in the course of the next three years the number of producing trees will have increased to 4,000,000, including those which are, as yet, immature, and those which will be freshly planted. At present the annual production of coffee at Monte Blanco amounts to 1,500,000 lbs. of finished, dry and marketable berries; but this output should easily be doubled within the next few years. With this view, the present plant was conceived to deal with an output of 3,000,000 lbs., and it can do so easily. Monte Blanco berries fetch the highest price of any coffee grown in the State of Veracruz. Mr. Braniff informed me that he contemplates creating an additional market for his product by advertising estensively in the United States and elsewhere, his coffee being undoubtedly a specially high-graded and wholly unmixed article of consumption.

President Diaz has a small but only partially cultivated hacienda near Ayutla, State of Oaxaca, known as El Foro, consisting of some 1,800 acres and containing 200,000 coffee-trees. The President takes but little interest in the place owing to his far more absorbing duties elsewhere; but one day he may retire there, Oaxaca being his native and well-beloved State.

The Continental Commercial Co., a St. Louis, U.S.A., organisation, has very extensive plantations located in the centre of the Isthmus of Tehuantepec, namely at Tolosa, Oaxaca, Lolita and Monte Verde. The company rank among the largest sugar-producers of the district, their factory being thoroughly up-to-date, and conducted upon very modern and progressive principles. The Monte Verde plantation consists

of 1,000 acres; the Oaxaca plantation also of 1,000 acres, containing 464,173 coffee-trees and 101,344 rubber-trees, while the Lolita plantation, also of 1,000 acres, has 367,000 coffee-trees and 183 rubber-trees. Two additional plantations, known as the Juniapa and the Pittsburg, each comprising 1,000 acres, are planted in sugar-cane, the former including the large sugar-mill already referred to. The plantation railway runs from a station on the Tehuantepec National line through the Juniapa, Pittsburg and Oaxaca plantations, while the Veracruz and Pacific Railroad cuts right through the Monte Verde plantation. Two out of the four plantations are situated on the banks of the beautiful Juniapa river.

The Isthmus Plantation Association of Mexico, a Milwaukee (Wisconsin) concern, owns the famous Hacienda del Corte, which is situated about 30 kilometres from the station of Palomares, on the National Tehuantepec Railway. A large house at Palomares exists for the accommodation of visitors, and is equipped with telephone connection to the whole of the property. The company are growers of coffee, rubber and tropical products, the manager being Mr. Cecilio Oest, a Dane by birth, and one of the most skilful agriculturalists in Mexico. The Hacienda del Corte may be reckoned among the more successful of the mixed-produce plantations of the Republic.

The Badger Mexican Planters' Co., who are manufacturers of sugar as well as growers of tropical products, have some first-class property located in the State of Veracruz, and situated some 3 miles from the Monte Verde Railway Station, on the Veracruz and Pacific Railroad. The properties are right in the heart of the coffee and rubber district, adjoining such well-known estates as La Junta, which produces coffee, rubber and cacao; Gascajal, coffee and rubber; La Solidad, coffee and rubber; and Buena Vista, rubber and sugar. The private property of Mr. Harvey, who is a very well known and successful horticulturalist, grower of rubber, cacao and tropical plants of various kinds, adjoins, as do the properties of Mr. Newark and Mr. Lane, both growers of rubber and coffee. In addition, there are several cattle-estates situated on both sides of the river, the district generally being considered the best from a productive point of view in the south of Mexico.

At the end of last year indications pointed to there being an

General View of the City of Tehuantepec.

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On the Pacific Coast in Tropical Mexico.

average crop of coffee throughout the different districts of Mexico, but since then a decided check to the crop has ensued, and when I left the Republic early in the year, it seemed as if in certain parts the return would be exceedingly poor. In the Cordóba district, for instance, the prospects of both the coffee and tobacco crops were very disappointing, and general financial depression was notable. Nevertheless, Mexico can always be counted upon to produce more coffee than it consumes, and for this reason the price rarely varies to any material extent. The present price for the best grades of export coffee is $25 (£2 10s.) a quintal, and for the best grades of coffee for the home market about $20 (£2) a quintal. The great bulk of the coffee exported goes to the U.S.A., as already pointed out. Mexican and other mild grades of coffee feel the pressure of the advance in Brazil grades very sensitively, and the demand for mild grades continually grows stronger as the price of Brazil grades advances; and while the advance on the prices of Mexican is not so rapid as in the case of Brazil grades, the increase in demand more than makes up the difference. Mexican coffee-producers do not benefit so much from the advance in prices as through the increased demand for Mexican coffee. Now that coffee-users are feeling the pressure of increased prices for Brazil grades, or what they know as "Mocha and Java," they are turning their attention to Mexican and other mild grades which have hitherto been without trade. Unconsciously, the Brazilian Government, by putting the valorization scheme into effect, are conducting a campaign which is educating the coffee-users in the U.S.A. in buying Mexican grades, and teaching them their superiority.

While there are some millions of acres of arable land in Northern Mexico on which corn might be grown with considerable ease and at little cost, and with resultant fortune for the entrepreneurs, the corn crop of Mexico has never been sufficient for the wants of the people; and, in spite of a large increase in the amount of land under cultivation, I am of opinion that it never will be. Importation will always be necessary. Every encouragement has been offered to the growing of corn among the Mexicans, the Government having imposed duties upon imported wheat—except at certain periods, when exemption from duty has been introduced.

In some parts of the Republic, notably the State of Guerréro, the price of corn is absolutely fixed, and does not move to the extent of a centavo from year to year. It would seem that corn in this part of the country is of the same standard value as are chocolate-beans in Venezuela, and might even be used as currency; but this applies only to a district where there are no railways, and the only means of transportation are donkeys and mules driven over a narrow and rocky trail. In due course, no doubt, railways will come into Guerréro; then the price of corn will vary as it does in other parts of the Republic.

In other directions drought has its usual effect upon the corn crop, but in all the districts served by railways nothing like a famine is likely to occur, on account of the immense supplies which are always on hand from the U.S.A., principally from Kansas City and Dallas, in Texas.

CHAPTER LIV

Agriculture—The unprogressive haciendado—Where improvements could be effected—Principal agricultural States and their value—Sheep-breeding—Averages obtained—Ox-raising—The Mexican breed—Characteristics of the ox—Mexican cattle and its principal markets—Shipments to the United States—Goat-raising—Annual value and consumption of flesh — Hog-raising — Packing possibilities — The Chihuahua dog.

There are certain anomalies existing in connection with the pursuit of agriculture in Mexico which strike one as somewhat remarkable in relation to a people so eminently alive to their own interests as are the haciendados. We find, for instance, that while cotton-seed meal is one of the most important products of the country and grown here to great perfection, nearly the whole of the output is annually exported to the United States and Europe, instead of being used for the feeding of the cattle in the Republic. Were it properly understood, or at least intelligently pursued, the fattening of cattle could be rendered one of the most profitable and permanent of industries. Looked at in almost any light, cattle-raising is a remunerative enterprise, and what it has done and is doing for the Argentine it could as easily do for Mexico.

It is estimated that to fatten a steer would cost $15 Mex. (say 30s.), and inasmuch as there exists a steady demand from Europe and the United States for choice beef-cattle at an average of 24 centavos (say 6d.) a pound, and there are no import duties to be met, an appreciable profit is to be earned in this direction alone. Nevertheless, we find Mexican cattle badly crossed and poorly fed, small in size and weighing anything between 900 and 1,200 lbs. instead of something between 1,100 and 1,400 lbs. An entirely different condition of affairs might be instituted and maintained were some

English Shorthorn bulls imported for the purpose of improving the breed. The Federal Government have, with characteristic energy, done what they could, by removing all imposts and restrictions, to encourage such importation, but the Mexican farmer and breeder is not sufficiently enterprising, as it would appear, to avail himself of these concessions.

The United States adjoining are an ever-present market for all that Mexico can offer in the form of beef-cattle, and especially just now, when the shortage in the States' normal amount of stock amounts to something like 8,500,000 to 9,000,000 head of cattle.

Cattle and sheep are raised in a more or less systematic manner—and, as I have intimated, rather less than more—all over the Republic, the principal producing States being Jalisco, Chihuahua, Guanajuato, Michoacán, Veracruz, Durango, Zacatecas and Yucatán, and in the order of importance in which I have placed them. The value in figures of these particular States may be put approximately as follows:

Jalisco produces	cattle	worth	$13,350,000
Chihuahua	„	„	9,240,000
Guanajuato	„	„	8,850,000
Michoacán	„	„	8,540,000
Veracruz	„	„	8,240,000
Durango	„	„	7,760,000
Zacatecas	„	„	6,330,000
Yucatán	„	„	6,150,000

Coahuila, with about $4,160,000; Puébla, with $4,400,000; San Luis Potosi, with $4,700,000; Mexico, with $3,600,000; and Tamaulipas, with $3,980,000, may be also reckoned as important cattle-raising States; but there are millions of acres situated in these and other portions of the Republic eminently adapted by the nature of the pastorage, the abundance of water and the nearness of markets, for the industry, which are at present disregarded, or but sparsely utilised. Take Oaxaca, for instance. The magnificent ranges here reach down to the Pacific slope, and these, in spite of the long dry season which prevails, offer strong inducements to cattle-raisers. Nevertheless, the total value of cattle produced there during the past few years has not exceeded $1,750,000 annually. Here, as in Tepic, Jalisco, Guerréro and Michoacán, pasture

always exists in a greater or less quantity, and with necessary precautions in the way of erecting dams, water-holes, tanks, etc., etc., both food and water might easily be found in sufficient quantities all the year round. The water provisions would be necessary to prevent the pasturage in the near vicinity of the rivers from being eaten up, and also enable the more broken parts of the country to be used equally with the smooth and flat table-lands.

Sheep and goat raising is a branch of agriculture which is somewhat better understood and more generally pursued than cattle-breeding. At the end of 1906 there were probably not fewer than 5,000,000 sheep, having a value of $9,000,000, in the country, exclusive of several millions of goats, although official statistics put the number and value at considerably less. The average value of a sheep on the range may be quoted at $1.75 to $4.00 (say 3s. 6d. to 8s.), but the quality as a rule is mediocre. The principal sheep-raising States are those of Zacatecas, which rears about 800,000 head annually; San Luis Potosi, 500,000; Coahuila, 200,000, and the States of Guanajuato, Chihuahua, Durango, Hidalgo, Mexico, Michoacán, Nuevo León, Puébla and Tamaulipas, with an average of from 80,000 to 100,000 head apiece.

It has been found from experience that sheep thrive a great deal better on the great central plateaux, where are found the more arid lands of the Republic. Here they are practically exempt from disease, and fewer predatory animals are to be feared than in the semi-tropical districts. Those which have been fed upon pará and other damp foreign grasses have done well for the first two or three years, but sooner or later disease has broken out among them, and upon several occasions whole flocks have become contaminated, and have either succumbed or have had to be destroyed. The cost of feeding the sheep on the table-lands is extremely low, being from 16 to 30 centavos (say 4d. to 8½d.) per head per annum, the price varying according to the amount and character of the pasturage. These are the prices paid for rented pasturage.

More enterprise has been displayed in breeding sheep than cattle, and every year a fair number of Merino rams are imported, and the stock is tolerably well maintained on the

generality of ranches. The native and unimproved breeds die out very fast, and the amount of wool which they yield continually diminishes both in quantity and quality. Mexican farmers and breeders understand this perfectly well, and are consequently maintaining their flocks at a certain—but by no means the highest—standard. The breeding ewes average from 1¼ to 1½ lambs per annum. The graded stock will yield from 4 to 8 lbs. of wool as against the 1 to 1½ lbs. from the ungraded sheep. Here, again, the character of the pasturage and the locality prove the controlling factors. In butcher's meat the average sheep will bring from $7.00 to $9.50 (say 14s. to 19s.) on the range, and in the towns or cities from 17s. to 22s. a head. The wool produced is somewhat coarse, and not equal to the best class Merino wool of the United States or elsewhere. There is little question but that it could be improved.

The ox proves himself as invaluable an aid to haulage and locomotion in Mexico as he does in Africa. Upon the hacienda he works patiently, ploddingly, uncomplainingly his 8 and 9 hours a day, and even more when asked of him. Those who have watched an ox hauling heavy wagons full to the brim of farm produce, or standing for hours together in the burning sun with lowered head and dull, expressionless gaze, imagine the animal to be utterly unemotional. It is true that one cannot get to love an ox as one may love a horse or a dog, and one feels but small inclination to caress or stroke his shaggy head or hairy sides. Nevertheless, a feeling of confidence can be established between the ox and his driver, and some Mexican peons get to know and like certain of their beasts, with which they can do much more than with others.

Every ox has his own particular characteristics, his likes and his dislikes, his good days and his bad. There is the willing ox and the obstinate; the big-hearted beast who loyally performs his portion of the labour and would continue to do it until he dropped, and the mean-spirited ox who pretends to be doing his part while all the time he is holding back and shifting all the heavy work upon his companions. The knowing of one's team and their distinctive peculiarities is very essential, and although the Mexicans are not nearly as intelligent or clever in their handling of their oxen as are the

Boers in South Africa, they can manage them fairly well and get an immense amount of work out of them. They make them travel at a faster rate than the African oxen—four or five miles against three in the hour—and Mexican oxen are less subject to disease than those of South Africa.

A large amount of Mexican cattle finds its way annually to Cuba, and trade with this Island is growing with great rapidity, not alone in this respect, but in general goods and passengers. At present a good deal of the Mexican cattle exported is sent from the colder regions, but they are by no means the best which the Republic can produce. Being in a generally poor and half-starved condition when despatched, they arrive at the Island of Cuba in a deplorable condition, and sometimes as many as ten or twenty out of one cargo will die *en route* or have to be slaughtered immediately they are landed. Apparently the Inspectors of the Mexican Society for the Prevention of Cruelty to Animals have not as yet devoted any attention to this crying evil. Mexican cattle is more in demand in Cuba than either horses or mules, but good beef-oxen are not as a rule sent there. Cuban agriculturalists and cattle-breeders prefer to buy up the lean stock and fatten them upon their own pastures; and even allowing for the heavy death-rate referred to among the transient beasts, the speculation proves a very profitable one. Several Cuban buyers are permanently stationed in Mexico, and have chartered steamers especially for cattle.

In comparison with the cattle sent into the United States of America, however, the Cuban trade is small. Great numbers of animals find their way across the frontier at Eagle Pass and El Paso, the respective frontier towns of the National and Central Railways, while the principal seaports used are San Blas and Guaymas on the West-coast. Last year over 65,000 head of cattle were purchased from Mexico by the United States, which, however, was poor compared with the returns of a few years previously, which amounted to over 99,000. Most of these cattle are sent to California to be grazed, but they find the climate there considerably more rigorous than that of Mexico, and as a consequence many of them die from cold and exposure. Nevertheless, so remunerative is this class of business found that it is stated by a

serious-minded and experienced importer that an investment of $30,000 U.S. Currency (say £6,000) realises, with ordinary good luck and under normal conditions, a profit of over $20,000 (say £4,000) in six months. No wonder that one hears of "cattle-kings," and of millionaires increasing and multiplying in this part of the world.

Goat-raising is another industry very actively pursued, especially in the State of Coahuila, where both sheep and goats are profitably bred. Here there are some 7,500,000 hectares (say 15,375,000 acres) of grazing land, the greater portion being goat pastures. For one year in Coahuila the average consumption of goat-flesh amounts to 14,290 animals of an estimated value of £11,175. The meat is sold per kilo (2 lbs.) at from 14 to 16 centavos (say 3½d. to 4d.), but it is disposed of nearly always by the whole carcass at from $2 to $2.25 (4s. to 4s. 6d.).

In Oaxaca also goat-raising has long been an important and thriving industry. Although found in large quantities all over the State, the animals are the most numerous in and around Nochixtlán. Thousands of animals are slaughtered in the autumn, and a visit to the stock-yards creates something like a feeling of horror and repugnance—as much as anything that is occasioned by inspecting the packing-houses of Chicago. The slaughtering is usually carried out at night, and the extent of the undertaking may be guessed when it is stated that some ranches breed and kill as many as 30,000 goats in the year. The killing is done with an ordinary knife, the animal being stabbed in the neck and left to run around the yard in agony until it falls exhausted and dies from weakness. This occurs to those among the victims which run far enough from the butchers; others which are less fortunate are very often skinned and disembowelled while still alive. The animals dead and dying lay about the corral in every direction, and where they happen to fall there they are skinned. There seems to be but little system or orderliness about the proceedings. As many as 800 or 900 goats are slaughtered in one night, and all the carcasses are sold by noon the following day. I have never observed any kind of official inspection either as to the condition of the animals before or after death. On the other hand, no complaints of diseased

flesh being exposed for sale have come under my notice, and in regard to the state of the shambles the purchasers are not particular.

Hog-raising is indulged in all over the Republic, every Indian, however poor, having his family of pigs, which usually share his hut at nights, but must forage for themselves among the rubbish and dust-heaps during the day. In the State of Tamaulipas the breeding of pigs has assumed important dimensions. So large is the trade done that a packing-house is under consideration. There are probably over 150,000 hogs in this State alone. The total number slaughtered in the Republic during the year is 800,000. There is not much attempt at scientific breeding, and, taken as a whole, the hogs are not of a very high standard as to quality.

Another packing-house has been lately launched at Cananea, in Sonora, the principal parties interested being a group of Americans with Mr. E. A. Tovrea, who acts as General Manager. The enterprise is known as the Sonora Packing Co., and has branches and depôts at Lowell, Bisbee and Douglas in the United States.

Chihuahua claims to be the second largest producer of cattle in the Republic, Jalisco being the first. The value of the live-stock is roughly $20,000,000 (say £2,000,000), cattle forming the principal part. Horses, mules, goats and donkeys are raised in great numbers also. Being close to good markets, both home and foreign, the stock is readily disposed of, large numbers finding purchasers in the United States. The price of pasture-lands still remains low, owing no doubt to the immense stretches still unoccupied, the price ranging from $2.50 (5s.) to $3.00 (6s.) per acre. Here also some improvement in cattle-breeding is to be observed, the strains being crossed with Durhams, Herefords and other noted breeds, and thriving uncommonly well. The sheep are becoming better-bred likewise, and the Rambouillet breed is found excellent for crossing. Mules are profitably bred in Chihuahua, crossing the Kentucky jacks with the Mexican mares producing fine, good-looking animals. The stock is generally thoroughly healthy, and the State maintains a strict quarantine inspection upon all imported animals.

Of the several extensive and successful cattle-ranches in

the State of Coahuila those belonging to Messrs. William Purcell and Co. (of Saltillo) stand prominent. They are known as Esmeralda and Santa Anita y Terrenos de la Frontéra, comprising about 300,000 acres. They are located between the San Rodrigo and San Antonio Rivers, both of which are flowing streams, and have ample water all the year round. Upon these extensive ranges the goats and mules bred there thrive amazingly. The prices realised locally for the former are $3.50 (say 7s.) a head, and for the latter $100 (£10) per head, the mules being bred from the finest Kentucky jacks and native mares.

Although dog-breeding has by no means attained a position of prominence in Mexico, if I except the raising of the diminutive and extremely beautiful little creature known as the "Chihuahua dog," some interest is being evinced in the matter, and at Coahuila two enterprising Englishmen have latterly successfully crossed the English foxhound with the Texan hound, the breed resulting in a very good hunting dog. The hound is found invaluable for running-down and killing the destructive and powerful wild-cat and coyoté (a kind of wolf), as well as the white-tailed deer.

CHAPTER LV

Haciendas—The haciendado—Life on a hacienda—The passing of the Mexican landowner—Ancient and modern methods of husbandry—How an estate is worked—Labourers' wages and treatment—Number of haciendas in Mexico—A model estate—Jalpa and its proprietor—Modern system of working—Remarkable system of irrigation—The great Jalpa dam—The hacienda's productiveness.

It is said that the days of the great haciendados are passing rapidly, and that in a few years' time their place will know them no more. A public writer once declared that Mexico was ruled by her farmers; and certainly the great landed-proprietors of the Spaniards' times were mighty powers in the land, as potent as the great mine-owners and employers of thousands of peon labourers—in many instances the haciendado and the mine-owner were the same.

I am afraid that hacienda-life, with its comparative isolation and separation from the gaieties of the Capital, has but little real attraction for the rising generation of owners; and, in the majority of cases, the management of these huge estates is left almost entirely in the hands of the major-domo, and but little supervised by the proprietors. Some take their acquaintances and their families there at certain—or uncertain—seasons of the year; but two or three weeks are usually considered the limit of the visitors' stay.

The price of land almost everywhere has advanced so rapidly of late years that the haciendado finds a larger income from the sale of his ancestral estate than from farming it himself. Many of the largest properties have been cut up into small lots and sold, and instead of continually amassing more and more land, as their forefathers did, the modern proprietors are distributing their once big holdings gradually and apparently without any keen feelings of regret.

With the passing away of the feudal powers which were formerly wielded by the great haciendados has decayed also their greatest charm. Since the owner cannot any longer, by the new laws of his country, hold the powers of life and death over his serfs, wage war upon his neighbour and generally play the part of a feudal baron of old, he will have none of it, and prefers to pass his time in gay Paris, London or Vienna, and occasionally in Mexico City.

Even the most up-to-date native haciendado in Mexico—and there are to be found several meriting this description—is a mixture of the old and the new methods distinctive of neither, and with a tendency to remain indefinite. While modern harvesting and threshing machines are to be found on the one hand, the lumbering two-wheeled ox-carts and winnowing by tossing the grain and chaff into the air with scoop-shovels are to be seen in operation on the other. The Mexican agriculturalist clings tenaciously to his traditional hoary-headed methods, and, while accepting with reluctance and some suspicion the newest appliance, he steadfastly refuses to altogether abandon the old. Thus we see the anomaly referred to; and I am of opinion that the same condition of things will continue for some years to come.

Upon the haciendas, which have as yet introduced no modern methods of procedure, the same kind of agricultural work goes on to-day just as it has gone on for centuries both here and in some parts of Egypt. We have the wooden-beam plough, with a small iron shoe, which merely scratches the surface of the ground to a depth of little more than 6 inches, and scarcely that in width; the hoe, weighing from 3 to 5 pounds, and wielded in a clumsy and inefficient manner; the sickle, a saw-toothed instrument, which misses as many blades as it cuts, and a few other equally primitive and profitless implements. It takes two men as a rule to manage one plough in addition to the team of oxen, whereas one man with a modern iron plough and the same number of oxen could do the work of a half-dozen.

The thrashing of grain on most of the haciendas is done by driving horses or mules around and around a ring covered with the grain, and which is thus trodden-out of the husk, as in the old Biblical days. As already mentioned, the

winnowing is accomplished by tossing the grain and the chaff together into the air about 10 or 12 feet high (the height being gauged by a pole stuck in the ground) by means of a shovel. From the fields to the barns the grain is conveyed upon ponderous two-wheeled carts, which as often as not get stuck in the mud, dropped over bridges and wedged in between gateposts. Such contretemps disturb the equanimity of the Mexican peon not at all. I have seen a trestle bridge thus blocked, and from fifteen to twenty fully-laden wagons awaiting a clearing before being able to pass; but the drivers were wholly undisturbed, and whiled away their—and their employers'—time until the man who caused the block had cleared it—entirely without any assistance from them—the while laughing and chatting, or calmly sleeping.

A hacienda run upon modern methods — or as nearly approaching the modern as the Mexican peon labourer will allow it to be—is usually a very profitable enterprise. I visited several such, and remained as a welcome guest during the harvest season, which during 1906 was one of the finest which had been experienced for many years throughout the greater portion of the country. The hacienda is usually divided into two sections, the cattle and the agricultural. Each of these sections has its foreman and staff, all of whom are, however, responsible to the head Administrator of the estate. The cattle section is usually a very important and profitable part of the hacienda's business. It is subdivided into several different *ramos*, each under a local superintendent called a *major-domo*, who has his assistant and men, and his own group of working oxen. Where there are, say, five such *ramos*, there will be five sets of different-coloured oxen, one *ramo* having white, another brown, another white with brown spots, and a fourth white with black spots. The particular beasts belonging to each division of a big hacienda are thus easily identified, and as easily counted each evening. Where some 8,000 or 9,000 head of cattle exist upon one hacienda, and this is by no means an exceptionally large number, the necessity for some such classification will be recognised.

The labourers reside upon the hacienda, which builds and supplies the houses rent free, permitting each family to keep 1 milk cow and 1 horse, but no others. Small payment has

to be made for the privilege of grazing these animals, at the rate of $2\frac{1}{2}$ (say 5s.) a year. Upon the agricultural portions of the hacienda the peons are not allowed to keep any female animal except pigs and chickens, for reasons which can be understood.

The peon earns on an average 25 cents (say 6d.) a day, being paid for a day's work consisting of the hours between daylight and dark, amounting to 11 hours in the summer, or by the *tarca*, or task. This latter is regulated by measurement, and according to judgment or convention. In our country we should term it "contract work."

Except at harvest-time the labourers on the haciendas receive their wages half in money and half in produce—namely, corn, wheat, barley, and beans and *garbanzo*, or chick-seed.

The *major-domo* receives a wage of $4.00 (say 8s.) a week, with free house. His assistant receives but $2.50 (say 5s.), and free quarters. They both work as hard as their peons, and at harvesting time the hours are from 3 or 4 a.m. to sunset, say 6 or 6.30 p.m. Overtime is very seldom paid for, and then only to the peons; but upon some of the more liberally-conducted haciendas such form of encouragement is adopted at times when extra field-work means, perhaps, the saving of a portion of the harvest from the impending rains. Generally speaking, the work of the hacienda proceeds perfectly smoothly and uneventfully from season to season and from year to year, excellent relations existing between employers and employees, and only now and again strikes or revolts occurring. These are usually of a mild sort, and being entirely unorganised are of brief duration, and generally end in the discomfiture of the malcontents.

Although precise official statistics are lacking, careful inquiry and computation lead to the conclusion that to-day there are about 8,050 haciendas (or, as they are called in most other Spanish-speaking countries, such as the Argentine, Chile, Uruguay, etc., *ranchios*) in the Republic of Mexico. These are split up as follows: Cereals (grain, wheat, barley, chick-seed, etc.), 3,400; sugar-cane, 1,380; henequén, 390; coffee, 370; maguey (*pulque*), 275; cacoa, 238; cotton, 135; maguey (*mescal*), 134; tobacco, 90; cabinet woods, 69;

indigo, 30; fruits, 6; vines, 6; and the rest devoted to cattle-breeding only.

The general produce found growing on the Mexican haciendas comprise the following: Rice, sugar-cane, coffee, sweet potato, barley, cereals, gum, peppers, cocoa, beans, fruit, chick-pea (*garbanzo*), fibre-plants, maize, melons, bananas, tobacco, vanilla, and, among breeders, horses, cattle, goats, sheep and pigs. There are many devoted to rubber, guayule (a native rubber) and the maguey plants. Naturally the products vary according to the situation of the hacienda and the climatic conditions prevailing. Thus, in some States the northern portion may produce wheat, maize, beans and other cereals, while on the southern section cotton, coffee, tobacco and rubber are found. Cattle are bred almost everywhere in great or small quantities, while ixtle and timber are cultivated upon some others.

One of the most lucrative and among the largest of the haciendas in the country is that of Jalpa de Canovas, the property of Mr. Oscar J. Braniff, one of the best known and most successful financiers in the Republic, and still quite a young man. Jalpa, which consists of some 19 *citillos* (a *citillo* is about 1 league square), was inherited by Mrs. Braniff through her father, Señor Canova, who, again, became owner through his first wife, the Countess de Jalpa, descendant of a long line of Spanish landowners holding their titles direct from the Crown of Spain.

The history of the Jalpa (or as it was formerly spelled Xalpa) estate is a remarkably interesting one, most of the earlier title-deeds and other papers being in existence, intact with their original seals and royal signatures. At one time the hacienda was of immense size, stretching through two different States; and although a good deal of the original holding had been sold in earlier days to satisfy the demands of certain extravagant members of the family, sufficient remains to constitute a small province. A day's hard ride is not enough to enable one to see all the land belonging to Jalpa, which occupies the basin of a charming and most fertile valley, abundantly watered and forming as compact and scenically attractive a landed property as one could find in any part of the world.

Some 32,000 acres are planted in wheat, and vast stretches are given up to irrigated and grazing lands. Over 1,800 men are almost continually employed on the hacienda, which, with their families, make up a total population of over 5,200 people, all satisfied with their lot, and apparently wanting but little more than they possess.

The total area of the Hacienda de Jalpa is about 130 square miles, a tolerably large estate for a single individual to own. Of this, about one-third, or say 45 square miles, is low level alluvial soil, and the remaining two-thirds are either hill or valley. The low-lying land, in combination with a splendid system of dams or reservoirs and canals on the higher lands, comprise the irrigation system of Jalpa for the raising of cereals and high-grade pastures, such as the valuable alfalfa, clover, etc., etc. Upon the higher ground are found the extensive cattle ranges, and a multitude of smaller patches of land, sown with corn, and depending upon the elements for their watery sustenance. The pasture-land supports between 8,000 and 10,000 head of cattle, some uncommonly fine specimens being among them. At one time, some of the most celebrated bulls used in the ring at Mexico City came from Jalpa, and many a doughty fight was recorded to their credit.

I do not think it can be denied that nowhere in Mexico—nor, indeed, out of it—is to be found a more complete or perfect system of irrigation than that constructed and maintained at a high state of efficiency at Jalpa. It is because it proved to be the finest I have yet seen that I have devoted some considerable space to its description here. The art of irrigation was well known to and greatly prized by the ancient Aztecs of the Anahuac Valley, to say nothing of the Egyptians before them. To-day may be traced the remains of numerous deep and shallow canals and lakes which at one time covered the face of the country like a network. These were all irrigating ditches and reservoirs, while the so-called "floating gardens," upon which many writers on Mexico have dwelt without at all understanding their origin and purport, were merely a system of irrigation ditches or canals, and served their purpose admirably enough. Jalpa hacienda has, indeed, long been celebrated for its dams and reservoirs. Some which were

built by the Spaniards, over 100 years ago, still exist, and one of them in particular was considered in its day such a remarkable structure that the King of Spain, as a reward to its originator, conferred upon him the title Conde de la Présa de Jalpa, which was borne by him and his descendants for many years.

This dam, containing about 15,000,000 cubic metres of water, gave way before a very severe storm about 70 years ago, and carried everything, animate and inanimate, before it, including about 400 natives, who were drowned to a man. Huge bodies of masonry were swept down about 300 metres with the rushing stream, and the fact that there is not a single tree to be found upon the hacienda more than 70 years old proves the wholesale destruction which was wrought by this dam-burst. There are not wanting numerous legends connected with this catastrophe, and which lose nothing in their telling by the old Mexican crones, who love to dwell with minute detail upon the gruesome and the ghoulish.

The present owner of the hacienda, Mr. Oscar J. Braniff, himself a clever engineer, and very keenly interested in irrigation projects, is now completing another dam, the construction of which is being followed with much interest. It will have a capacity of 35,000,000 cubic metres of water, and thus become the largest undertaking of its kind in the Republic of Mexico. Mr. Braniff commenced work upon this colossal enterprise some five or six years ago. The wall, now completed, measures 550 metres in length at the crown, and it is 85 feet high. Between foundations and masonry above ground, the wall represents about 80,000 cubic metres of masonry. Its total cost, including pipes, valves, canals and other auxiliary apparatus, amounts to $1,000,000 (£100,000).

The capacity of this dam, added to that of the Jalpa dams of the Colonial period, aggregates nearly 60,000,000 cubic metres of water, insured by the water-sheds (of which Mr. Braniff is part-owner also), and the surface of which is about 500 square kilometres, thus providing an amount more than necessary to guarantee sufficient water for the whole year.

Additionally, however, the hacienda owns the rights on the River Turbio (an affluent of the River Lerma), which runs through the level part of the farm, to the extent of some

42,000,000 cubic metres of water per annum. Altogether, Jalpa can dispose of an aggregate of over 100,000,000 cubic metres of water annually, all of which, by gravity, irrigates the 45 miles of level land above mentioned, while the surplus supply is sold to farmers who are located further down-stream for the irrigation of their lands, amounting perhaps to about 40 square miles more. The vast importance of such a system of irrigation as this is obvious, and causes it to rank among the most remarkable enterprises of its kind of the world.

As is the case with practically all the large estates which I have seen in Mexico, Jalpa has extensive ranges of residences for the use of the families employed, headquarters for the principal employees, and a fine house for the owners, sufficiently commodious to accommodate as many as a hundred guests at the same time, without crowding or inconvenience. The park and orchards extend over an area of 30 acres. These were designed over 50 years ago by some French and German experts. The Jalpa grounds are reckoned among the most beautiful in the Republic, and to my mind they certainly deserve that distinction.

This hacienda has further a modern flour-mill, worked by hydraulic-power brought some distance over an immense and very ancient stone aqueduct, in excellent condition still. All the wheat grown on the farm is handled in this mill, and represents one of its most lucrative and important departments. Capacious masonry-built warehouses, over 50 metres in length, and located at different convenient situations about the farm, remind one strongly of the ancient times of Egypt, when grain was stored hermetically (but below instead of above ground), and thus stood for many years until required. The people living at Jalpa number over 4,000, of whom some 1,300 are men available for work. Every kind of modern steam plough, agricultural machinery, large and small, may be found in daily use here, and I understand Mr. Braniff contemplates constructing a light-railway to connect Jalpa with the principal markets and nearest railroad at Francisco Station (Central Railway).

DAM BUILT BY MR. OSCAR J. BRANIFF upon the Hacienda Jalpa, State of Guanajuato. The largest private dam in the Republic.

CHAPTER LVI

Irrigation—Government and private enterprise—Ancient irrigation system—Some projects—Lake Texcoco schemes—Land speculations—Some shady American companies—Consular actions—New enterprises—Some vast holdings—Danger of large tracts held by companies—Value of land in Mexico City.

The question of efficient and cheap irrigation to any agricultural country is one of such great importance that it is not surprising to find the intelligent Mexican Government devoting a great deal of its attention, and much of its resources, to the matter. Unfortunately these efforts have not met with the ready response and success which they undoubtedly deserve. This fact is the more surprising considering the number of colonists and agriculturalists who have established themselves in Mexico of late years, and whose efforts can only prosper on well-irrigated land.

The two enterprises—colonisation and irrigation—ought really to march hand-in-hand, but, as a matter of fact, many of the individual colonists who come to Mexico, as well as several of the large agricultural companies, appear to think little or nothing of the necessity of introducing some form of systematic irrigation, leaving the question of their failure or success for the most part to Providence.

It is quite clear that irrigation was understood and practised by the ancient Aztecs, who, although possessing but a very rudimentary knowledge, and pursuing their methods in a very crude form, nevertheless, to use an American expression, "got there."

The practice of impounding the drainage of small catchment basins in natural depressions and artificial ponds by the construction of dams of earth and stone was common wherever the *pueblo* (country) mode of life prevailed; but only in a very

few localities can remains of these methods still be found. Where they do exist, however, they point clearly to a definite system of irrigation. The best example of this kind of work is to be found at a place, now a ruin, about 15 miles south-west of Pueblo Bonito. This is in the basin of a wash of a river, which is tributary to Charo Cañon. The valley here is quite broad, and, on the eastern side, is limited by a low *mésa*, at the base of which stand the ruins of the *pueblo*. The wash is about one-third of a mile to the west, while south of the ruins is a large natural depression which was made to serve as a reservoir for the flood-waters diverted from the wash. A ditch fully 2 miles long conducted the water from this lake to the fields, which must have been quite extensive. The ditch was carried around the *mésa* and along a series of sandhills on a fairly uniform grade, the construction being mainly of earth-work, but wherever necessary the lower border was reinforced with retaining walls of stone, portions of which still remain in places.

As I have said, both the Federal and the State Governments alike are devoting their attention to the question of irrigation, which must result, sooner or later, in great advantages to the whole country. It must be remembered that, for the most part, the land rises perpetually from the coast to a habitable altitude of over 3,000 metres (say 9,842 ft.), thus creating a series of insurmountable obstacles both to the retention and gradual absorption of the rain-waters which are precipitated over the rough surface of the land, passing with great velocity over the fields and river-beds in their course to the sea, leaving behind a deplorable and ruinous drought, and, in some places, almost perpetual aridity. It is to overcome this that strenuous efforts are being made by the Government, as well as by certain enterprising individuals. The former, for instance, grants privileges by means of concession, such as the exemption for five years from all Federal taxes (the stamp-tax excepted) upon all moneys invested in the survey, construction and repairs of the works for irrigation. It allows, free of any kind of duty, the importation of all necessary machinery, scientific instruments and necessary apparatus, as well as the right to occupy gratuitously any national lands for the passage of canals, and for the con-

struction of dams or dykes and reservoirs. Furthermore, it provides for the expropriation of any lands belonging to private parties, upon proper indemnification being paid. It is not improbable that one day the Government may go even further, and grant direct franchises of a wide-sweeping nature, as well as guaranteeing a fixed return upon the capital invested. A system of subsidies could be thought out, while the Government itself might with advantage undertake the execution of irrigation works, which could remain the property of the State to be exploited by it or to be disposed of either by the gradual sale of the water rights, or in consideration of payment upon the annual instalment plan.

I have already referred to the exceptionally fine piece of enterprise upon the part of Mr. Oscar J. Braniff in connection with his Jalpa hacienda, namely, the construction of a dam which will be both the largest and most expensive ever undertaken by a private individual in the Republic of Mexico. Other enterprises of which I have personal knowledge include a vast irrigation scheme in connection with Lake Chapala, in the State of Jalisco, upon the part of Mr. Manuel Cuesta Gallardo, who holds a Federal concession for irrigation purposes. In order to carry out his undertaking, Mr. Gallardo has borrowed the sum of $1,000,000 (£100,000) from the Bank of Jalisco; and so important is considered the concession which he holds, that a German Syndicate offered him, through the banking-house of H. Scherer and Co., of Mexico City, the considerable sum of $5,000,000 (£500,000) for his concession.

Messrs. Ortiz and Arocena have introduced a system of irrigation upon their hacienda of San Francisco, in the State of Veracruz, using the water of the River Tecolapa. A great dam is to be built at the entrance of the Guayjuco Cañon, in the State of Nuevo León, which will not only provide water for the City of Monterey, but will irrigate the surrounding district for many years to come.

At the mines of Guanajuato, the Guanajuato Development Co. have built a large dam in connection with their Peregrina mine; while the same Company, who own the San Isidro Ranch, are undertaking a highly important irrigation scheme

by means of which a huge area of rich, agricultural land on the plain will come into cultivation. The ranch covers some 16,000 acres, of which two-thirds are tributary to a single drainage basin. This will be economically but efficiently dammed, and thus form a reservoir, sufficiently large to contain 6,000,000 cubic metres (1,500,000,000 gallons), while, the ground having a much greater altitude than any of the surrounding country, the water will be supplied by means of gravitation to any point which is necessary for the purpose of the mines, mills, factories, or irrigation.

Important works are in process upon the borders of Lake Texcoco, with the idea of utilising for various purposes the great volume of water continually flowing into the lake. The waters of Rio Actopan, in Veracruz, are being adapted to irrigation purposes; while in the State of Querétaro the waters of Rio de San Juan del Rio are being used by the owner of a large ranch, Señor Geronimo Fernandez. A concession has been given to Mr. Otway Norwood to use the waters from the river Nazas, in the State of Durango; while in the States of Chihuahua, Coahuila and San Luis Potosi, various concessions have been granted for the use of river waters. The department of Fomento (Federal Government) have granted numerous applications of late for concessions for irrigation purposes, one of the largest being that obtained by the Inde Gold Mines Co., for using the waters of the Sestine River. The ranch-owners in the Laguna district of Coahuila State are about to erect a huge reservoir on the Nasas river for irrigation purposes, and in all probability this will be the largest construction of its kind in the Republic. Three large enterprises in the State of Chihuahua are projected, one on the Conchos river above Santa Rosalia, which includes a large hydro-electric plant; another in the Mormon Colony of Juarez; and a third on the lands of the Corralitos Land and Cattle Co. The Junta de Mejoras Materiales (Board of Material Improvements), of Chihuahua, are about to construct a large dam on the Chuviscar river; and in the State of Durango an extensive system of irrigation controlled by a dam is being constructed on the Hacienda Guatimape. This dam will yield about 8,000,000 cubic metres of water.

In the month of December last the Mexican Government

concluded an important treaty with the U.S.A. Government providing for the construction of a big dam across the Rio Grande, above El Paso, in New Mexico, for the purpose of making an equitable distribution of the waters of the river to the two countries for irrigation purposes. The State Government of Tamaulipas have granted a concession to Señor Inigo Noriega, who has long been identified with agricultural enterprise, for an important irrigation scheme in that State, which will have for its object the reclamation of a vast area of arid lands.

Messrs. S. Pearson and Son, Ltd., have obtained several important concessions for the utilisation of water for various purposes, such as motive power, etc., while Señor Andrés G. Castro has received powers for the use of the waters of the river Guadalupe in the State of Mexico, although in a different direction to that which he originally indicated, it having been found that the waters could not be taken from the particular place desired.

The few instances which I have given will show that the question of irrigation is not being neglected either by Government or individuals, but it would be even more satisfactory were the attention of both to be given to artesian wells. Where these have been sunk, they have proved very satisfactory. Another excellent scheme which has been suggested by Mr. R. F. Hayward, manager of the Mexican Light and Power Co., is the installation of electric-pumps upon Lake Texcoco, giving a pressure only sufficient to raise the water into irrigating ditches, when well-planned systems of distribution could carry it over a great area. This scheme appears to me to be perfectly feasible; and providing the necessary funds could be found to work it, I believe it would result in financial and economic success. In the meantime the Federal Government has put in the hands of its resident hydrographic engineer, Señor Alvarez del Castillo, the task of arranging for the use of the waters of Lake Texcoco for irrigation, including the erection of flood-gates and the construction of canals radiating from several distributing points, the object being to use the overflow of the lake, which must be kept at a low level in order to protect the City of Mexico, which on previous occasions has suffered serious inundations from the effects of its overflow.

Among the great water powers of the Republic must be considered those of the Tuxpango and Atoyac, secured by the enterprising landowners, Messrs. Oscar and Thomas Braniff of Mexico City. Their important powers were acquired last year by the Puébla Tramways, Light and Power Co. (a concern now controlled by the Mexican Light and Power Co. and the Mexican Tramways Co., Ltd.) for the price of $625,000 (say £62,500). The development of the power acquired is now approaching completion, the combined capacity amounting to between 50,000 and 60,000 effective h.p. Perhaps of the two important sources of power mentioned, that of the Tuxpango-fall presents the greatest facilities for development. In fact, it is considered to be the cheapest developed power in the Republic. Its power amounts to 35,000 h.p., and is at present used almost exclusively for the Puébla Tramways, Light and Power Co.; but inasmuch as the power available will shortly amount to a great deal more than will be needed for the Puébla purposes—for a considerable time to come, at any rate —a portion of the power will be carried through to Mexico City, where the demand for additional power and light has grown so enormously that it can only with difficulty be supplied.

A feature worth noting in connection with the Tuxpango-falls supply is that there exists no element of doubt or conjecture about it. The water in the Rio Blanco has been checked for the last 20 years by the hydro-electric installations up-river, built, for the greater part, by the firm of G. and O. Braniff and Co., and used for the large cotton-mills, lighting and other industries situated in and around Orizaba.

Apart from the value of this continuous water-power to the above-named industries, the development of the Tuxpango and Atoyac Falls means great advantages to numerous other enterprises, both actual and contemplated. Among these is the Orizaba Light and Power Company, owned by Messrs. Segura, Braniff and Co., which will derive undoubted advantages from the development, as the rapid demand for their power has also caused them to look elsewhere for their supply. Again, the proximity of the City of Veracruz, and the enormous railroad terminal developments proceeding there

bring prominently to mind electric suggestions for running lines into the first Port of the Republic.

The Mexican Railway, now about the most profitable line in Mexico, and which was the first to be constructed in the Republic with British capital, has seriously considered the question of adopting electrical traction. The line passes over an incline from sea-level to a height of some 8,000 ft., with grades running up to 4½ per cent. on curves; and there can be no question that some day electrical traction will be used for negotiating these heavy grades and curves. Here, then, will be found the value of the Tuxpango and Atoyac power. The Messrs. Braniff, in conjunction with the Westinghouse Electric and Manufacturing Co., have been working steadily for the last four or five years to bring about the adoption of this suggestion, and while it cannot be asserted that the Mexican Railway will finally conclude to electrify their lines, the earnestness with which the matter has been taken up, together with the practical experiments and demonstrations culminating in the adoption of electric power by the Grand Central Railroad of New York, have served a great purpose in showing what electric power can do, especially for roads running through mountainous countries, which may be said to be the physical condition from Mexico down to Patagonia.

The agricultural possibilities of Mexico have not escaped the attention of that large body of knaves who are always ready to fatten upon the success of a country and the credulity of legitimate investors. Thus it happens that no country has suffered more from fraudulent exploitation than Mexico, and even if to-day it can be claimed that the air has been somewhat cleared, the memory of their bitter experience must still linger with a large number of victims of comparatively recent times. Much about the same frauds as were perpetrated in the U.S.A. in connection with insurance, wool and mining, were attempted with only too much success in regard to Mexican plantation propositions, the result of which was that in nine cases out of ten the investors lost every penny of their money. This may appear a strong statement, as indeed it is, but I think, upon investigation, it will be found accurate. I do not mean to say that all the failures were the result of fraud. Some schemes, no doubt, were

honest enough in their inception, but unfortunately they none the less ended in financial disaster. To the credit of the late American Consul-General in Mexico City (Mr. Parsons) be it said, he strove strenuously to bring to justice some of the scoundrels who were responsible for the swindling of American investors in regard to Mexican land schemes; while his successor, Deputy Consul-General Eberhardt, who has since been transferred to a responsible post elsewhere, continued in the same direction. I feel certain that the present able Consul-General, Mr. Alfred Gottschalk, will prove no less zealous in his official capacity.

Indeed, investors stand in need of some sort of official protection, since the majority of them invest their money without having any opportunity of seeing the properties which form the basis of the undertakings, and must, therefore, rely to a great extent upon the *bonâ fides* of the promoters.

One of the worst examples of these land frauds was that known as the Ubero Plantation Co., promoted by a man named Ferdinand E. Borges of Indiana, and who in the month of July last year was righteously sentenced to serve from twelve to fifteen years in the State prison, having been convicted upon no fewer than seventy-three counts of larceny, and upon one of conspiracy in connection with the affairs of this Company.

If it were not so tragic for the unfortunate investors, it would be almost amusing to read the description of the Ubero properties which this man Borges published broadcast, and which untruthful accounts, I am sorry to say, were innocently advertised in a number of Mexican newspapers. Another Company which came to grief, not through fraud but through bad management, was the Mexican Plantation Co. It had a capital of $600,000 gold (£120,000), the failure being attributed to the exorbitant prices being paid for the plantation to the original owners.

The Rio Bonito Plantation Co., a Chicago corporation, also fell into trouble. This was an offshoot of the Dos Rios Planters' Association, which also became insolvent, and was re-organized in the name of the Mexican Gulf Agricultural Co., which also went into liquidation, and was again re-organized

as the Mexican Gulf Commercial Co. It will thus be seen that the methods of these enterprising promoters in continually issuing the same scheme is much the same as that which prevails in the United States as well as over this side among a class of mining company promoters, and it is astonishing to find practically the self-same public being victimised again and again. But then, so long as there are fools in the world, there will be knaves to prey upon them.

The Tabasco and Chiapas Trading and Transportation Co., of Chicago, was yet another instance in which a charge of fraud was made. The Company was described as "a trading and transportation undertaking," but according to the detectives who investigated the matter, the transportations appear to have been mostly confined to the money of the victims passing into the pockets of the promoters. Neither the State of Tabasco nor that of Chiapas appear to have had any real concern in the schemes of the promoters, who are said to have netted no less a sum than $800,000 (£160,000). Both the President and Treasurer of the Tabasco and Chiapas Trading and Transportation Co. of Chicago were arrested on a charge of using the U.S. mails in a scheme to defraud. As an instance of such fraud, it was said that land was bought at $1 per acre and sold to the shareholders at $300 !

A Company of a different kind is the Dos Rios Plantation, which, however, has been hardly less financially unfortunate. The original capital was placed at $5,000,000 gold (£1,000,000), of which $3,800,000 had eventually to be written-off as lost, so that the capital stands to-day at $1,200,000, and $370,000 mortgages. When the Company defaulted in the payment of the interest on its bond issue the holders made application to the Courts to have the mortgage foreclosed, and thus they secured the entire property. As a matter of fact, the losses were not anything like as heavy as they appeared at first sight, as the Common stock cost the holders nothing, they having been presented with these as *douceurs* upon subscribing for the bonds, as is customary with American enterprises. The plantation is now doing much better, and may turn out a moderately successful undertaking yet. It is situated on the Isthmus of Tehuantépec, in one of the most productive portions of the Republic.

Among the more successful enterprises may be mentioned several which have been formed of recent times.

The Chiapas Land and Stock Co. owns some extensive plantations not far from the border of Guatemala, and in the district now being served by the new Pan-American Railway. In the same district the U.L. Dyke Investment Co., of Los Angeles, California, owns a large tract of land intended for colonisation purposes, part of which property will be put upon the market in small allotments as the opportunity offers. A London Syndicate last year purchased, through its representative, Mr. J. J. Harold, of Mexico City, some 170,000 acres of forest land, principally pine, in the Territory of Tepic, located on the borders of the Santiago river. It is intended to clear this ground of its timber and use the same for colonisation purposes, for which it is admirably adapted. Some Washington capitalists have purchased 200,000 acres of land in the State of Oaxaca, located about 50 miles from the City of that name, and about 25 miles from the line of the Mexican Southern Railway. British capitalists are also interested in this enterprise, and will market the land with the valuable timber with which it is covered. The Sinaloa Land Co. own something like 10,000,000 acres of land in the State of Sinaloa, but so far little or nothing has been done with it.

A number of American capitalists, headed by the well-known firm of George D. Cook and Co., of New York, are interested in the Sierra Madre Land and Lumber Co., which owns 2,315,000 acres of rich pine-timber lands, situated in the two States of Chihuahua and Sonora. The Company have built a railway to their sawmills from Temosachic, making connection with the Chihuahua and Pacific and the Mexican Central Railways, thereby bringing the property into close touch with the markets. Sawmills, with a capacity of 500,000 ft. of lumber per day, have been erected, and the cutting and the marketing of the timber have been in active operation since the first month of this year.

It cannot be that the acquisition of such huge tracts of land as these is beneficial to the country as a whole. In fact, it may be regarded almost as dangerous, and I venture to say that sooner or later the Mexican Government will have to

introduce legislation which will discourage corporations or individuals from acquiring such huge blocks of land, and allowing them to lie fallow. We have seen the evil results of such policy in Australia, where there are a large number of proprietors who own millions of acres returning nothing to them and nothing to the community. It must be remembered that the untilled land pays no taxes in Mexico, and, therefore, there is every incentive for these corporations to lock up the land for an indefinite time. The Government could easily obviate such a practice as this by imposing a small but sufficient tax per acre upon all held land of the Republic, whether cultivated or not. Not only would the country derive an enormous revenue, such as would enable the Government to abolish other taxes, and otherwise derive advantage, but it would put a stop to the land-grabbing which is going on now to a very dangerous degree. Additionally, small farmers and colonists would be induced to go into the country in much larger numbers than at present.

Undoubtedly, land values all over the Republic have shown an altogether astonishing advance during the past few years, and some enormous tracts of territory have changed hands, the purchasers being principally American capitalists. In the State of Chihuahua, for instance, during the last two years, nearly 4,000,000 acres of the finest timber lands in the Sierra Madre region have passed into the hands of Americans, at a very much higher price than would have been paid, say, 10 years ago. A price of $1 gold (4s. 2d.) per acre may be taken as a general basis of to-day's renting.

In regard to grazing-lands, some comparatively recent sales showed an increase of from $2,500 (£250) per *sitio* to £8,800 per *sitio;* while, in the State of Tamaulipas, several important colonisation projects have matured, and some extensive tracts of rich, tropical agricultural lands have been taken over by different Syndicates for the purpose of being resold to prospective settlers. Reports from other States, and from the southern part of the Republic in particular, indicate that the same increased demand for suitable land is being met with.

So far as prices of land in Mexico City and such cities as Guadalajara, Guanajuato, Tampico and Oaxaca are concerned,

quite fancy figures have latterly been given. As an instance of the first-named, it may be said that some 23 years ago, three native bathing establishments existed, in a line parallel with the Paséo de la Reforma. The site upon which these stood was purchased originally for $40,000 (£4,000), but the owner of the establishments could not make them pay, and for many years the land remained without a tenant. About 18 months ago this same piece of ground was sold for the sum of $700,000 (£70,000). A piece of land which was purchased by the Mexican Tramways Companies for $8,000 (£800) only ten years ago would have fetched $80,000 (£8,000) last year, if the Company had been disposed to sell, which, however, was not the case. Numerous other instances of such sensational rises in value of Mexico City land could be given.

The price of public lands in the various States is regulated by Federal Government every year, and the following prices are those which are fixed by the Department of Fomento for the present year. The States are given for easier reference in alphabetical order, and the prices relate to hectares, $1\frac{3}{4}$ hectares being equal to about 1 square league, or, say, $4\frac{1}{4}$ acres:—

Aguascalientes, $7.00; Baja California, $2.00; Campeche, $4.00; Chiapas, $4.00; Chihuahua, $3.00; Coahuila, $3.00; Colima, $6.00; Distrito Federal, $100.00; Durango, $4.00; Guanajuato, $12.00; Guerréro, $5.00; Hidalgo, $5.00; Jalisco, $9.00; Mexico, $21.00; Michoacán, $14.00; Morélos, $27.00; Nuevo León, $3.00; Oaxaca, $5.00; Puébla, $11.00; Querétaro, $9.00; Quintana Roo, $2.00; San Luis Potosi, $4.00; Sinaloa, $4.00; Sonora, $4.00; Tabasco, $7.00; Tamaulipas, $3.00; Territorio de Tepic, $4.00; Tlaxcala, $17.00; Veracruz, $12.00; Yucatán, $4.00; Zacatecas, $3.00.

CHAPTER LVII

Agricultural machinery and implements—San Luis Potosi Exhibition—Government encouragement — Rice — Cacao — Chicle — Vanilla — Fibrous plants—Henequén—New tax effects—Zocatan—Fruit culture—Bananas — Oranges — Pecan — Pineapples — Foreign importations—Neglected opportunities—Guano—Maguey.

With so conservative a people as Mexican peons to deal with, any progress in introducing new methods and new machinery must necessarily be slow; nevertheless, some headway has been made of late in regard to the introduction and popularisation of modern agricultural implements and machinery. No doubt much of the success achieved—limited though it be—is due to the Juarez Agricultural School, under the charge of a Southern Californian horticulturist, Mr. Elmer Stearns, who has so far proved an exceedingly useful official. An experimental farm of some 40 acres has been secured from the Federal Government, and here young men are trained as farmers, and thoroughly grounded—no pun intended—in the necessary knowledge, and assisted by practical experiment. Last September an exhibition of agricultural produce took place at San Luis Potosi, and attracted widespread attention. The Mexicans evinced considerable curiosity in the various kinds of agricultural machinery on view, in addition to specimen exhibits of cotton, corn, wheat, silk, tobacco, hardwoods, fruits and cattle sent for exhibition from every part of the Republic. The stock represented included Durhams, Herefords, Holsteins, Swiss, Jerseys, and Polled Angus cattle.

The Mexican Government, with a view to the encouragement of agriculture along modern lines, has substantially reduced the duties upon agricultural machinery and implements, by which decree the United States benefit enormously,

practically all the farm machinery in the Republic coming thence. Upon one hacienda I have seen a gigantic 25-h.p. steam-plough, which made 16 furrows at a time, and turned up about 13 acres of land a day. There is no better agricultural machinery than the American, and by its use the productiveness of Mexican haciendas is increased by from 40 to 50 per cent.

Rice is grown in many parts of the country—I might say in most States—the greatest producers being Morélos (about 5,650,000 kilos), Michoacán (4,401,000 kilos), Colima (2,075,000 kilos), Puébla (2,142,000 kilos), and Tepic (688,000 kilos). Other rice-producing States are Campeche, Coahuila, Chiapas, Jalisco, Hidalgo, Guerréro, Oaxaca, Querétaro and Mexico.

Barley is found in all the States, excepting those of Campeche, Colima, Guerréro, Tabasco and Yucatán; the total annual production is about 2,150,000 kilos, valued at $5,000,000 (£500,000). Puéblo and Mexico supply the most.

Cacao is indigenous to Mexico, and it has been cultivated from time immemorial. The ancients used to make a popular drink from it known as "chocolate," and Cortés, in a letter to his King (Charles V.), says: "He who has drunk his cup of chocolate travels a whole day without requiring any other food."

The cacao plant is a slow grower everywhere. In Jamaica, Tobago and other West Indian Islands, where I have seen it growing to perfection, it reaches maturity in eight years. In Mexico it takes 10 years to become a fully-grown tree. It yields for about 20 years, and then gradually fails. The trees are planted about 400 to the acre, and each tree should yield from 600 to 1,000 lbs. of the bean. Tabasco derives considerable profit from its cacao plantations, where good land can be picked up for about $8.00 (16s.) an acre, in blocks of from 500 to as little as 100 acres. In Tabasco there are 4 firms engaged in cacao-planting, in Chiapas 2, and in Veracruz and Oaxaca 1 each. Colima, Michoacán and Guerréro also grow the bean to a more limited extent.

Chicle, a sort of gum exuding from the *chico-zapote* tree, is one of the principal products of Mexico. Although no actual cultivation of the tree takes place, the natives tap the natural

sources so abundantly that the export of the gum is now of great importance. To plant the trees, a very little expenditure would be necessary—about 3 centavos (say ½d.) per tree per annum. Each tree, if planted at a distance of 10 ft. apart, or, say, 400 to the acre, should yield from 5 to 6 lbs. of the merchantable gum, when about 8 or 10 years old, and measuring from 12 to 15 inches in diameter. The gum sells for 50 centavos (say 1/-) a lb. on the coast.

Vanilla is another profitable cultivation, and has been commercially grown since the time of the Aztecs. The Spaniards also soon saw its great value, and cultivated it assiduously. For many years Veracruz—then a Province, but now a State—supplied practically the whole world with vanilla until Java and the Bourbon Islands entered the field as competitors. The greatest supply is now taken by France, Germany, Great Britain and the United States, following on in the order named. Even to-day Mexico provides two-thirds of all the vanilla consumed in the United States, or about 140,000 lbs., valued at $640,000, annually. The bean is found in Veracruz, Oaxaca, Chiapas, Tabasco, Jalisco and Michoacán. It is sold by the thousand pods. The average yield of a plantation is from 10 to 20 pods to the vine, but artificial manuring will produce more. There is a decided advantage in cultivating vanilla, inasmuch as corn or similar products can be beneficially grown in conjunction, the one aiding the other materially. Upon coffee plantations it is often found as an adjunct.

Both American and British capitalists are turning their attention to the fibrous plants of Mexico, feeling assured that a profitable business can be created in them. In Oaxaca, Mr. Theodore Meyers recently was treating for some lands for the cultivation of pita and ixtle, as well as other fibres common to Mexico. Henequén is, of course, the premier plant of this character, and has succeeded in establishing itself as a valuable and permanent product. During the last 25 years, namely from 1881 to 1906, exports of henequén, or sisal, from Progréso (Yucatán) have been 9,219,245 bales, weighing 1,490,951,765 kilos, and valued at $300,988,072 (say £30,098,807). The year 1902 proved the highest record in actual value, the amount realised being $34,185,275

(£3,418,527). The lowest was in 1889, when the amount came to $1,024,360 (£102,436).

Last year proved a good one for the industry, since Manilla, the only serious rival to Yucatán henequén, suffered severely from a shortage of about 100,000 bales.

Last September the State Government of Yucatán attempted to place a tax of one centavo per kilo upon the production of henequén, but a perfect storm of protest was the outcome on the part of every grower and merchant in the State. Yucatán has no natural resources, and henequén is its sole source of wealth. The price of the fibre has also gone down considerably of late, and the rate of living is excessively high compared with other States in the Republic.

No doubt the monopoly hitherto possessed by Yucatán in the henequén trade has aroused the ire and the jealousy of other States in Mexico, and the most bitter opposition has also been organised and financed from the United States. Their feelings had not been assuaged by the comparative failure of the Manilla crop, upon which they depended to counteract the Yucatán supply. It was, therefore, with great satisfaction that the United States witnessed the threatened discomfiture of their Mexican competitors. The State Government seems to have made a very great mistake in introducing such a tax, and already Yucatán is suffering severe financial embarrassments, several bankruptcies having lately taken place and a general air of depression prevailing.

Among other valuable merchantable plants found in Mexico, and which form part of the Republic's continually augmenting export-trade, may be mentioned zocatan, a root found in many parts of the country growing wild; oleaginous plants, such as the castor-bean, the pea-nut, the cocoa-nut, sesame, linseed, etc., etc. The medicinal plants include some 233 varieties; there are 14 dyewoods; numerous fodder-plants, such as pará, guinea-grass, alfalfa, and trifolium. Of tanning-plants there exist several varieties, the annual value of the tannic-acid extracted being about $49,050 (say £4,905). Chiapas goes in extensively for the cultivation of the *yucca* plant, or shrub, which grows to a height of 4 feet, with from 6 to 10 tubers to each plant, weighing from 1 to 12 lbs. each. These tubers yield starch in large quantities, and additionally

provide food for both men and cattle. Sugar-beet, ginger and other spices grow wild in various parts of the country, and if properly cultivated would undoubtedly yield handsome profits upon the outlay.

With all her richness of soil, beneficence of climate and abundance of labour, Mexico has not yet become the great fruit-producing country that one would have expected. In some respects she is, indeed, lamentably backward, for instance in her banana production, which is both poor and insufficient. Last year, when violent hurricanes seriously damaged the banana-groves of Jamaica and Cuba, would have been Mexico's opportunity to enter the United States market, which just then was bare of fruit. But the psychological moment passed unsnatched, and, as we know, *occasio ægre offertur, facile amittitur.*

At one time it was thought that the United Fruit Co., which already has a practical monopoly of all the banana-trade of the Carribbean Sea, would have selected Mexico as an additional and always reliable produce-field; but, so far, nothing has come of the suggestion. One other American firm, however, has lately acquired extensive lands in the Veracruz district, purposing to cultivate bananas for the United States market and run a special line of steamers between the States and Mexican Gulf ports, as well as manufacturing the bye-products. The Herrandura Fruit Co. are planting several hundred additional acres in the Tamaulipas State in bananas, adopting the best grades of Jamaica fruit. The Mexican Tropical Fruit Co., a San Francisco concern, with a capital of $500,000 (£50,000) has 1,500 acres in the Banderos Bay district, a short distance from the Pacific port of Las Peñas, devoted entirely to the cultivation of bananas. Near the port of San Blas (Sinaloa State) an American Company established a banana plantation some few years ago, which has been successful from the first crop. Two fruit-steamers now ply regularly between San Blas and San Francisco, carrying the produce of this Company one way, and freight for Mexico the other. Messrs. Lujan Brothers in 1905 acquired an immense tract of land in the State of Chihuahua, which they have devoted to banana-growing, and, as I understand, with success. Dr. C. M. Harrison, of Mexico

City, has some extensive acres on the Panuco River, Tamaulipas, and is supplying the Californian markets with bananas. He has also a large and profitable plantation at Veracruz, and he finds that the fruit can be grown and shipped thence to California more quickly than from any other part of the world.

The United Fruit Co. handled in 1906 35,439,536 bunches of bananas, as compared with 30,296,709 bunches in 1905, or an increase in one year of 5,142,827 bunches. A very small proportion of this supply, however, came from the Gulf coast of Mexico.

Oranges, which could be grown to perfection in Mexico, are for the most part neglected, and their proper cultivation but little understood. The fruit matures two full months before the Californian, and if efforts were made it could precede the latter on the New York market by many weeks. The lemon crop extends throughout the year, and can be gathered every month. Mr. W. W. Hopps is cultivating oranges scientifically on his hacienda at Las Peñitas, about a mile from the Port of Tampico, and has expended some £5,000 upon laying out and planting groves. Some excellent oranges are also grown in the State of Jalisco, especially in the Atotonilco district; while Yantepec, in the State of Morélos, is rapidly acquiring success as a producing centre. It has already despatched several shipments to the United States. The Moctezuma Orange and Banana Co. is an American corporation having head-offices in Salt Lake City, with a capital of $100,000 (£10,000), and owning some 1,200 acres of good fruit-land on the Tamesi River, State of Tamaulipas. There are 800 acres in bananas, and 200 in oranges, all the produce going to the United States. The Mutual Planters' Co. own extensive lands near Tamos, Tamaulipas, the produce going principally to Chicago, where most of the stockholders of the Company reside.

In Northern Mexico the fruit-growing experiments have afforded great satisfaction to the entrepreneurs. Within a few years this part of the country should become a heavy producer of fruit of all kinds. In the neighbourhood of Gomez Palacio (Durango) some of the finest grapes that I have ever seen are grown. Several hundreds of thousands

Scenic Route on the Central Railway.

State of Tamaulipas—Surf bathing at La Barra, Tampico.

of vines are now planted there, and apparently are doing exceedingly well.

As to nuts, the Mexican pecan has long been a favourite with people in the United States. The fruit is somewhat inferior to the Texan variety, but, on the other hand, it matures a month earlier. Sometimes as many as 60 carloads of pecan-nuts are shipped from Mexico to the United States in one season, but last year the crop in Nuevo León and Coahuila proved a failure. The great majority of the trees bore no fruit at all, the shortage being estimated at about 400,000 kilos; and instead of 60 cars being despatched to the United States, only 1 was sent. The best fruit comes from the district around Monterey, in the State of Nuevo León.

Figs are prolifically grown in the hot country, and the business done in the North in the dried variety is considerable. Last year a parasite in the form of a small butterfly-egg appeared, and did a good deal of injury. The Mexican fig is very delicious, and very cheap. Strawberries may be purchased all the year round, and travellers over the Mexican Central Railway are offered at the Irapuato Station heavy baskets of the fruit at anything from $1.00 down to 25 centavos (2s. to 6d.). The appearance of the fruit is everything that could be desired, but the quality is disappointing. It has little or no flavour, and cannot be compared to the British variety such as comes from the North Devon strawberry-beds.

Pineapples grow luxuriantly, but little attention is devoted to their proper cultivation. Strangely enough it is only within the past few years that the fruit has been consumed by the Mexicans, nearly all the produce hitherto having been shipped abroad. Nowadays there is a good and increasing local demand. The fruit fetches anything between 5 centavos ($1\frac{1}{4}$d.) and 75 centavos (1s. 6d.), according to the size and season.

The importation of such fruits as apples, pears, peaches, raisins, grapes and walnuts is steadily decreasing, principally owing to the heavy freight charges, the fruit arriving by "express." The increase in the local supply from the many Mormon and Boer colonies and the more enterprising Mexican

farmers also accounts for the considerable falling-off. Ninety-five per cent. of the imported fruits come from California, and the remainder from Colorado. It is anticipated that in a very short while the local producers will supply the entire Mexican market, and no further foreign importation will be needed.

In common with many other close observers, I was somewhat surprised to find huge tracks of country lying quite adjacent to the City of Mexico, and in the famous fertile Valley of that name, almost neglected. Beyond several thousands of acres of the maguey plant, which would appear to flourish everywhere and anywhere, very little trace of agriculture of any kind is to be seen. The fact that most, if not all, of this land is impregnated with alkali seems to be an objection in the minds of the owners to putting it to any useful purpose. Its appearance, to the ignorant in agricultural matters, is decidedly against it, being dry, sandy and possessing little or no soil. But a very little experience would have taught that much of this very unattractive-looking land, with its alkali, if properly drained, could grow several crops of sugar and beet, and, above all, alfalfa in quantity—perhaps six or eight crops annually. The alkali is not such an insuperable objection as many suppose, the properties being a ready solution in water (and thus easily drained away), the formation with other acids of salts, absorption of moisture from the air, and, in a pure state, the performance of the duties of a corrosive poison. Alkali in the organic form of alkaloids is a very valuable discovery.

Last year the Government granted a concession to M. G. F. Archer for the exploitation of guano on the Arcas and Arenas Islands, in the Gulf of Mexico, for a period of ten years. The concessionnaire will pay the Federal Government 75 c. (1s. 6d.) per ton upon the guano extracted, and also the customary export duties. No doubt the enterprise eventually will prove profitable, since the shipments of the guano should be easy and inexpensive, while the demand for artificial manures of all kinds in Mexico, although not very large at present, must become so as soon as more modern methods of cultivation are generally adopted.

Although the maguey plant is found elsewhere (I believe in some portions of the United States, for instance), it is only in

Mexico that the plant grows to perfection, and in vast quantities. Passengers travelling in almost any portion of the Republic are struck with the millions and millions of these graceful-looking plants (very similar in appearance to the *cactus* plants cultivated in European countries for ornamental purposes), which stretch away from one side of the horizon to the other in endless serried ranks, planted at precise mathematical distances (about 9 ft. apart from one another), and all at various stages of growth.

There are no fewer than 125 different species of this one plant, the best known being the *mescal* (or *tequila*) and *pulque* producing species. It grows abundantly upon the plains and at elevations of from 7,000 to 8,000 ft. above the sea-level. Intoxicating liquors are by no means the only purpose to which this useful plant can be put, for as many as 40 different articles are made from it, such as paper from the pulp, twine from the fibres, needles from the sharp tips of the leaves, and roofs for the natives' huts. A fine kind of papyrus was (and still is) also made, the ancient Mexicans having thoroughly understood the art of preparing such material; and that it was of an excellently enduring character is proved by the freshness which specimens made 800 and 1,000 years ago present to-day.

The pulque is the fermented juice which is extracted from the maguey plant, and the process followed is extremely interesting, but scarcely conducive to a great longing for a taste of the sickly-looking compound produced. I have often watched the Mexicans at this—their favourite occupation, next to killing and skinning something—and as the methods followed are precisely the same in every case (as I have before observed there is little individuality about a Mexican peon or anything which he does), a single description will suffice.

CHAPTER LVIII

Immigration—Government offers—Lack of response—Former colonization efforts—Class of settler being attracted—Land available—Boomers—A warning—Good and bad—Peasant proprietors—How they live—Peons and politics—Prices of land—Japanese and Chinese colonists—Mormons—Boers—Russian settlement—Viljoen family—Undesirables from the East—Veracruz their favourite State—Danger ahead.

Although at the present time the Mexican Government is making little or no special efforts to attract immigrants, the natural flow of foreigners, although slow, is not unpromising. In past times inducements were held out to immigrants, but these were only slightly understood, and but little availed of. In 1827, when the country was just commencing to breathe again after a long and exhausting struggle with the revolutionists, the Government of the day brought in a law known as "prosperidad general," which, as its name implies, was meant to help along everybody and everything. However, the "prosperidad general" lingered long on the way, and so far from others coming into the country in their thousands, as the Government fondly hoped, those who were already in and could not before get out, seized the opportunity of peace being declared to depart.

In the year 1846 further official efforts to attract settlers were made, and the Minister of Foreign Affairs, Sr. José M. La Fragua, in presenting a plan for legislation to Congress, went so far as to declare that "the neglect of colonisation in the past had been a crime of high treason." Still the people did not come; nor did they arrive in any larger numbers when, in the days of the Empire, Señor Robles submitted to Congress further plans for attracting immigrants; nor yet when, in 1868, Señor Balcorel, nor in 1877 when Señor Polacio, promulgated further and alluring announcements of what the Government was prepared to do.

The colonisation law of Mexico, which was promulgated on December 15th, 1883, contains some 4 chapters and 31 articles. The provisions are very complete, and on the whole scrupulously fair and just, such, for instance, as exclusion from military service, exemption from all taxes except municipal, and exemption from all duties upon articles of consumption not produced in the country, as well as upon agricultural implements, tools, machinery, etc., and all household furniture and animals intended for breeding purposes.

It may appear remarkable that, in view of such inducements, colonists have failed to arrive in Mexico in anything like large numbers. It seemed that everything which a Government could legitimately do in the way of inducement was done; and without going into fuller details as to its efforts, I may say that the conditions were exceptionally favourable in those days, as they are generous in these. No doubt, 40 or 50 years ago, those to whom the appeal was made were thoroughly scared at the horrors which had gone on for several years during the revolution and the brief days of the Empire, horrors which lacked nothing in gruesomeness in their narration; while all the free land offered was, and still is, for matter of that, situated many miles from any railway communication, and the proximity of so many Indians, who were far more numerous than was made out to be the case by interested parties, made a settlement of whites anything but attractive. Even to this day colonisation in Mexico is not in a satisfactory state so far as free settlement is concerned; but, on the other hand, every day witnesses a number of well-to-do foreigners and capitalists coming into the country, many of them to remain as permanent residents, and to settle down to trade and commerce with seriousness and determination.

Several French, Italian, German, Mormon and Boer colonies have been formed in Mexico, and, on the whole, may be said to be doing well. Those who have located in the State of Veracruz, some of whom were established a quarter of a century back, are now fairly prosperous; while among the Mormons, of whom several thousand exist, especially in the North of the Republic, prosperity is certainly attained. Yet a third colony, known as "Blalock," settled in the State

of Tamaulipas and consisting of some 520 families, are doing extremely well, owning between them some 85,000 acres of fairly productive and remunerative land. All that has been accomplished, and this is considerable, has been effected in little more than three years, and an air of general contentment prevails in the little community. The colony itself is located a considerable distance from railway communication, the nearest station being about 30 miles distant, which naturally means great expense and inconvenience in transportation, postal communication, etc.

It is a matter of history that in 1903 the Mexican Government offered the hospitality of this country to the dissatisfied Boers, who were anxious to leave the Transvaal and the Orange Colony when these became British possessions. General Snyman came here to spy out the land, and finally, with the assistance of the Governor of the State of Chihuahua, he selected some 83,000 acres of fine ranch land in the vicinity of Santa Rosalia, Chihuahua. Negotiations were also entered into, but were never consummated, to acquire a further 325,000 acres near Jiminez, a short distance away. Efforts to establish Boer Colonies along the Yaqui River, in the State of Sonora, and in the vicinity of Tampico, on the Gulf of Mexico, were also unsuccessful, for the Boer is an uncertain and discontented kind of person.

Having travelled considerably in and about the Isthmus of Tehuantepec, the country in which are located most of the Colonies (outside those which I have mentioned above), it may be desirable to say a few words upon the amount of business done, the kind of life that is led, and the sort of people—natives—that one finds there. The States of Oaxaca and Veracruz, through which the Isthmus of Tehuantepec runs, have already formed the subject of a most outrageous "boom," engineered in New York and Chicago some three years ago, when, as the result of unconscionable "puffing" and advertising, a number of "agricultural" and "plantation" companies were formed with absurdly inflated capitals, setting forth possibilities which never existed, and which under no conceivable conditions ever could exist, but which, nevertheless, served their purpose in attracting the dollars of the more credulous investors. Fortunately no British capital

—or at worst very little—found its way into this financial sink. It is now possible to say that out of some 150 different plantation companies which were floated and subscribed by the investing public, scarcely one-tenth have paid a single cent to their proprietors. Others, which might have returned a modest dividend, were ruined by ignorance of management, extravagance and fraud; it was a sort of South Sea Bubble over again, but on a smaller scale, sufficiently serious and disastrous, however, to give a bad name to Mexican plantation schemes and to cause investors generally to button up their pockets tightly whenever a proposition of this kind is made to them.

There is reason to believe that attempts will be made shortly to trade upon the credulity of British investors in regard to the rubber-growing districts of Mexico, and in relation to this I would warn my readers earnestly against relying in the slightest degree upon the glowing prospectuses and reports emanating from the same sources. This much, at least, may be depended upon. Of the many rubber estates established and producing in Mexico to-day, scarcely a dozen among them are paying a profit! What they may do in the future I do not know, nor, indeed, can anyone say. But it should be sufficient for the intelligent and discriminating investor to know that there are to-day, as I have said, hardly a dozen among the numerous rubber plantations in the Tehuantepec district of Mexico which are yielding a legitimate profit to their owners. Where, as is frequently the case, rubber-growing is combined with sugar, cocoa, bananas and other tropical produce, a different condition of affairs is prevalent; but the rubber prospectus-promoter says little or nothing about these products, because, as a rule, he does not possess —or is at all likely to possess—them. Rubber, by reason of its present high price, attracts the gambler and the speculator, but the investor should remember that producing-estates cannot be purchased "cheaply" unless there is something radically wrong with them, such as disease among the trees, difficulty of securing labour, long distance from a railway or shipping port, or a top-heavy capitalisation. Several rubber companies in Mexico, some situated in the neighbourhood of the Tuxpan Valley, Veracruz, are doing well at the present

time so far as actual sales to New York markets are concerned ; but for one or other, or all, of the reasons I have given above, the profits are insufficient to give any return worth consideration to the proprietors.

The Northern European settler who goes to the hot country of Mexico—*la terra caliente*—must be prepared to face many disadvantages, even though he meets with lovely scenery, cheap living, a pleasant populace, and bountiful harvests. Anyone arriving from North Britain, for instance, to establish himself upon the Isthmus of Tehuantepec, in Veracruz, Guerréro, Tepic, or any other of the sub-tropical and tropical States of Mexico, must disabuse his mind of living a perfectly ideal life. In the first place he will find irritating hot winds blowing at certain times of the year, day and night, bringing myriads of flies, mosquitoes, and other winged nuisances, and no relief from the heat; a danger in drinking any kind of strong liquors (whisky in small quantities and only occasionally being possible), a lack of social attractions, and at first a general lassitude, which to the strong and vigorous son of the North is a little alarming. Against these drawbacks, however, he has many advantages, and if cheapness of living be any inducement he will certainly find it in Southern Mexico. House rent even in the towns is low, but on the plantations it is practically nothing at all, for one lives almost entirely out of doors, and needs neither firing, much clothing, nor any great quantity of meat. Freedom from disease cannot, of course, be guaranteed in a land where malaria continually lurks, but provided one abstains from "the drink"—the curse of so many who come out to a new and a hot country—maintains a certain amount of physical exercise, and rigorously observes the laws of cleanliness and disinfection, even an attack of malaria need not prove dangerous, and one becomes inured to its visits in a very short space of time. This at least has been the experience of men who have lived, and still live, in the tropics of Mexico, and has been my own when sojourning in every torrid zone of the four quarters of the world.

In perhaps no part of the globe has the question of peasant proprietorship been more thoroughly tested and proved than in Mexico—on the uplands as well as in the lowlands. No

matter how poor he may look to the eye or be, as a matter of fact, the Mexican peasant is a "landowner" of some kind. Every one has a patch, small or large, of land, and cultivates it—producing, possibly, barely sufficient to keep body and soul together, but forming his one worldly possession, which nothing would induce him to give up. At certain periods of the year every Mexican peon leaves his employment, no matter how great be the inducements held out to him to remain—to till his little piece of ground and to sow the seeds for the coming season. In some of the busy mining districts, such as Guanajuato and Oaxaca, I have known the labour managers to offer their workmen twice and thrice the value of their as yet unsown crops if they would remain; but they have stubbornly refused, and have gone forth into the fields, just as their forefathers have done for generations past, and have sown their seeds in the same old primitive manner, with the same old wooden implements, and have then gone straight back to their former employment until the time to reap has come, when the same exodus recurs.

Experience of the Mexican peasant proprietor certainly proves the contention that possession of land encourages the growth of a sturdy and independent class of men. No one, however, could describe the average peon as "thrifty," for he is a spender of everything that he makes, a gambler, and very often a drunkard. If he is not in the hands of the money-lenders, it is because no capitalist can be found foolish enough to lend him money; he is content to live from hand to mouth, saving nothing, learning nothing, shut out from all ambition or prospects of bettering his condition, a victim to rank superstition and possessing the fidelity, perhaps, but none of the intelligence of the average dog.

In many European countries, and especially in Germany, experience has shown that the creation of peasant proprietorship has been the means of keeping the labourers on the soil, thus helping to solve the social question. In Mexico there is no "social question," and the peasant proprietor has no desire to leave the soil, which is his dearest, and, in fact, his only, possession. The peon cares little or nothing for politics, and understands them even less; so that his presence has no effect whatever upon the welfare or the reverse of the existing

condition of Government. The system of small holdings certainly does not tend to small families, as, I believe, has been cited in the case of peasant proprietorship in some European countries. The peon's family is usually a very numerous one; and as they cost nothing to keep or to clothe, and are made to work in the field almost as soon as they can toddle, they are found profitable in the extreme. They live with the pigs and the goats and the chickens in a rough bamboo hut, open to the four winds of heaven, eat the eternal *tortilla*, a flat cake made of crushed mealies, seasoned with hot peppers and onions, and wear the same simple and cheap cotton garments (generally of native make) from year's end to year's end. They have strong constitutions, and seldom fall sick. They commence their daily toil at 6 a.m., and continue it, with the interval of an hour for the midday meal, until 6 p.m., and sometimes until long after sunset. As a rule they are of a lively disposition, respectful, courteous, and even cheerful, submissive except when in drink, and easily handled. As in almost all Catholic countries, they are entirely in the hands of the priests, who levy heavy tolls "for the Church," and thus leave them abjectly poor. Out of the 365 days of the year, the Mexican peons usually work for less than 200, the rest being devoted to saints and public *fiestas*, which but few of them will consent to forego.

A large amount of good land, suitable for colonists, still remains available, and can be picked up from $1 (2s.) to $5 (10s.) per acre. Low "home-seekers' rates" are in effect from all the largest cities of the North of America to Mexico, but little or no attempt to secure immigrants upon a progressive or systematic scale is being made. It is surprising that the railway companies do not exert themselves to this end, since they must, to a great extent, benefit. To induce colonists to come to Mexico in anything like numbers, it will be necessary to employ suitable colonisation agents, men who should be in receipt of substantial salaries, so as to make them proof against land-sharks and fraudulent companies. These agents should be instructed to exercise great discrimination in the selection of men and women as colonists, since experiments up till now in artificial immigration have proved the reverse of successful in many cases. Many of the contractors and

agents have recruited from the dregs of cities, like Naples, whence thousands of unemployed—and unemployable—have been swept into the net, many of them proving, upon investigation, to be broken-down clerks, socialistic artisans, and drones of the community.

The largest percentage of immigrants coming to Mexico at present are Japanese and Chinese, who are kept out of the U.S.A. by the Exclusion Act. These so-called "undesirables" settle in Mexico and, in most instances, make altogether excellent citizens. Mormons also are in most cases very successful. It is sought to induce some 12,000 of these to leave their present quarters near Salt Lake City to settle in Sinaloa, upon the territory owned by the Sinalao Land and Development Co.

Veracruz would appear to be a favourite locality for colonists, where, indeed, farm labour is sorely needed. Unfortunately, again, many of those who arrive there, especially a large class of Arabs, Turks and Syrians, are by no means adapted to agricultural labour, and naturally prove more a source of trouble than of benefit. All that these Easterners seem to hope for is to establish themselves in the dry-goods trade, or hire themselves out as bar-keepers and pedlars of cheap laces, calicoes, hosiery, toilet-articles, common pocket cutlery, brass jewellery and other cheap and trashy articles. On the other hand, quite a large number of desirable colonists from Texas and other parts of the U.S.A. have lately come into Veracruz, and will no doubt prove a leavening element, and make a success of their venture.

Many colonists who have been induced to come to Mexico have complained very bitterly of the rates which are charged by some railway companies, which, instead of working hand-in-hand with the transatlantic steamships, seem to offer a great deal of opposition and hostility, which are visited upon the shoulders of the innocent immigrants. For instance, some railways allow the steamship agents to sell tickets at "colonist-rates" in Europe all the year round; but these same tickets are only honoured in Mexico for a limited and strictly-defined period, no knowledge of which is communicated to the immigrant until too late to be of any service. On the other hand, when the colonists do know of the stringent terms, they refrain from purchasing tickets until the low travel-rates are

in effect, and then they go to Mexico with a rush, overcrowding the steamers at one period, and leaving them practically empty at another.

Among the most recent immigrants who have arrived in Mexico are a number of Italians, who are settling near Lake Chapala. They mostly come from the rural classes of Italy, and have been induced to settle in Mexico by Señor Mercurio, a compatriot, who is a very keen enthusiast upon the subject of immigration, and is thought to have a sort of commission from the King of Italy. A large body of the best class of Russians have lately settled in the Nuevas Casas Grandes country, State of Chihuahua, the settlement consisting of 200 families, each member of which contributes a fixed sum per month from his or her wages, which go towards the purchase of a 15,000-acre tract of land, situated 25 miles north of Ensenada.

The Boer colony, to which I have already referred, is composed for the most part of men who are naturally splendid agriculturalists. They have received free grants from the State Government, and among them are living the father and mother of General Viljoen, who help to form a total of four generations of that family. In order to do them honour, the former Governor of Chihuahua (Señor Enrique Creel) stood as godfather to the latest Viljoen baby, born before his departure. The Boers in Mexico are exceedingly hard-working, and therefore form the type of immigrant needed.

The Japanese immigration agent recently completed arrangements with the Government of the State of Colima for the introduction of 500 families of Japanese agriculturalists who have settled on land in this State. The Federal Government has granted a concession to the Mexican Land and Colonisation Co. and to the Lower Californian Development Co., authorising them to promote agricultural colonies in the Peninsula of Lower California, the intention being to establish at least 150 families within the zone reaching from the boundary-line with the U.S.A. to 100 kilometres into Mexican territory. The Mexican Agricultural Land Co., which is an American organisation, has introduced several colonists upon its lands, which are located at Agua Fria, in the State of Veracruz. These are altogether a superior class of settler,

being possessed of some means, and several have become purchasers of small properties in the district. While Veracruz is, as already said, the favourite state for immigrants into Mexico, there is not lacking a certain danger regarding the indiscriminate recruiting which is going on there. Turks and Syrians are pouring-in in unrestricted numbers, and the conditions prevailing demand the closest attention, as well as the utmost intelligence and efficiency, upon the part of the authorities in order to prevent any retrograde movement from taking place.

CHAPTER LIX

The peon—His evolution and emancipation—His character and habits—Former and present wages—Peon women—Home life—Characteristics—Labour questions—Demand and supply—Paucity of masons, bricklayers and carpenters—Socialistic teaching effect—President and strikers—Central Railway troubles—Orizaba strikes—Labour unions in Mexico—Their teaching and probable effects.

Once upon a time the Mexican labourer was about the hardest worked, the worst paid and the most unhappy creature under the sun. According to the records which exist his lot was only a little less sad, and no more hopeful, than that of the animal. Under Spanish masters he was made to work in the mines like the galley slave or modern Russian political prisoner. He was whipped unmercifully when he objected and shot relentlessly if he rebelled. For close upon 300 years he laboured thus, scarcely calling his soul his own. Then came his emancipation, for with the banishment of the Spanish Crown and the breaking of the priestly power the Mexican peon was, at a blow, freed from his enemies.

But did he respond? Alas, no. The three centuries of oppression, physical and mental, had broken his spirit, blunted his intellect and destroyed his self-respect. The reaction was too violent, and it is scarcely surprising that the poor brute-man should have failed to realise the new and untried strength bestowed upon him. "He hath no power that hath not power to use," says Bailey, and this was the case with the Mexican peon. To-day he is a different being, but his transformation is not wholly for the better. He is apt to rush to the opposite extreme, to imagine himself more important than he is, to scoff at legitimate authority and forget the bitter lessons of his adversity. From blind obedience he is invited to league against his employers; to

indulge in the excitement but also the dangers of class warfare; to depart from, rather than approach near to true social conditions, and to indulge in specialisation of his own particular interests, as opposed to those of the community at large. All of this is due to the specious and deceptive teaching of the Socialist agitators who find ready listeners and unthinking supporters in the emancipated peon. At the same time he has improved as an artisan, and is a more potent factor in production. He has become more intelligent in some things, but more arrogant; more skilful as a worker but less valuable as a servant, and therefore less useful as a citizen. The change which has affected the working man all over the world—in England, in Germany, in France and in the United States—has not passed Mexico by. A distinguished French writer once designated the British workman as "one of the filthiest upon the Continent," and no doubt the description was true. The same has been said of the German and of the Frenchman, but it would be as equally false of the same class of workers to-day. The Mexican has improved also, if but little in his personal appearance, much in his practical skill.

A decade ago the peon did not average more than three or at the most four days' work out of the seven. To-day he works every day but a *fiesta*. He was formerly paid about 37 *centavos* (say 7½d.) a day. Now he receives a minimum of $1.00, or 2s., and often as much as $3.00 (6s. 0d.) a day and extra for overtime. Instead of being a drug in the market he is at a premium, and instead of being treated as a creature rather inferior to a dog, he is carefully protected by the Government, the manufacturing classes and the mining community, all of whom are—or shortly will be—competing for his services.

The typical Mexican peon is short and stocky in figure, swarthy of countenance, black of hair and happy of disposition. In his loose-fitting, baggy white-cotton clothing. his high steeple-crowned hat and his dirty leather sandals, he does not present a particularly attractive appearance. Probably from the day he was born his shaggy locks have never known a comb; his body is but once a year laved in water, and then on Saint John the Baptist's Day. He is a spendthrift and a born gambler, a happy-go-lucky, careless, merry creature, with no care but that of his soul, which he

thinks of day and night, morning, noon and eve, sacrificing his personal comfort, his present needs and his scanty earnings to propitiate his patron saint and to satisfy the injunctions of his priest. Withal the peon is a courteous gentleman at heart, quaint and amusing in his conversation, witty, ready and shrewd, as prompt with his last *centavo* to help a friend as he is with his *machete* to resent a wrong or avenge an insult. He is a devoted father and a more or less faithful husband; a good son and a loyal soldier when called upon to defend his country. He can work like a Trojan if encouraged, and shirk like a Hottentot if bullied or unfairly blamed. He is fundamentally honourable in settling his debts, but an unconscionable thief when any favourable opportunity for pilfering presents itself. In a word, he is a curious mixture of the good and the bad, the attractive and the repellent, the trustworthy and the unreliable.

The peon woman is outwardly, at least, more cleanly than a man. She is a good housewife, an affectionate mother and a confirmed gossip. No matter how humble her home—and most peon homes are extremely humble—she loves it and clings to it, wandering not far away and ever ready to obey the call of her better-half or extend a graceful hospitality to the stranger. She is an enthusiastic but somewhat slovenly cook, with a native fondness for grease and hot spices; she evinces very little desire to exceed the narrow limits of her daily life, but displays a feminine fondness for fripperies and fallals and a love of hoarding the heavy, fat silver dollars. Many a peon household is saved from starvation by the thriftiness of the housewife, when the lord and master has expended his last *centavo* and pledged his last possession to gamble on the beloved cock-fight or bull-ring chances.

Everywhere the demand for Mexican labour is being met with, and the supply is continually growing less. In Mexico City there is and has been for some years past a great shortage of stone and brick masons, carpenters, painters and other skilled labour of the building trade, a scarcity which seems destined to continue for a considerable time. In agricultural and mining circles the same condition prevails, in spite of wages for labourers having materially increased of

late. At certain seasons of the year the railroads and cotton-fields of Texas absorb many thousands of Mexican labourers by reason of the high wages offered; but the men invariably come back at the beginning of the cold season in much about the same way as do migratory birds. With the arrival of the first cold weather they swarm over the border, and remain in the Republic until the warmth once more attracts them to the northern regions.

In spite of his enjoying a state of prosperity hitherto unknown, the Mexican labourer falls a ready victim to the wiles of the Socialist agitator. During the past 2 years the labour question has become exceedingly acute in Mexico owing to the number of strikes—some without any sufficient provocation—which have taken place. On more than one occasion there have been appeals to Cæsar in the person of the President of the Republic, who, with his usual patience and customary fairness, has gone into the questions at issue between the men and their masters. The President entertains very broad views on the labour question; but while favouring neither side, he adheres undeviatingly to his programme of "peace with order." He has displayed no antipathy to the many labour unions which exist to-day, in spite of the bad effect which they have had upon the attitude of the working man generally. General Diaz has laid down the *dictum* that the Unions are free to execute their own affairs, but must not and shall not attempt to overstep their privileges. He holds out no hope that they can take part in the councils of the corporations, nor will he permit them to prevent workmen not of their membership from applying for or accepting employment. The various attempts which have been made to start a minor civil war under the pretext of a strike have been promptly nipped in the bud. There can be no question that there would be a serious setting-back of the clock were the Government weakly to allow agitators free and unfettered scope in the country. Any attempts to introduce the methods which have been permitted elsewhere would stir up in Mexico widespread trouble, the end of which it would be extremely difficult to foresee. The right of men to refuse to work or to accept wages which they think too low has never been interfered with; but the protection of the Government is only

thrown around those who maintain a peaceful attitude, and refrain from disturbing public order.

Several strikes were started last year, one of the worst being upon the Central Railway. The Railway authorities were absolutely right in their contentions as to paying the best men—whether Americans or Mexicans—the highest wages, and refused to concede the demands of their employees that all were to be paid alike at a certain rate whether skilled or unskilled. The 17 different demands made by the strikers were denied in every case. It was in regard to this strike that the President intervened, and, after hearing both sides of the case, he told the men that their attitude was not the best for the welfare of the country, advised them to go back to their work, and at the same time suggested to the Company several points for their consideration, which they promptly adopted. The men returned to work, and both sides expressed themselves as satisfied with the decision of the Chief Executive.

Numerous strikes accompanied by violence, and, I regret to say, by several deaths, occurred last year and again this spring in the cotton-manufacturing districts of Orizaba; to these disturbances I have made fuller reference elsewhere. While the labour outlook is by no means as peaceful as might be desired, and while the chance of trouble which the Labour Unions can effect has not been materially lessened, the position has to some extent improved. It was scarcely to be expected that in the widespread ramifications of labour troubles all over the world Mexico would be overlooked, but with a firm and vigorous Government to deal with, the agitators have less chance of a sweeping victory than in other countries.

In Mexico to-day the workman has not to contend with the impersonal form of mastership assumed by joint-stock companies, trusts, rings, directorates or other combinations, and no such necessity exists for combination among themselves as is the case in the United States for instance. Nevertheless labour organisation in Mexico is not wholly evil, more especially as the dominant note is, at least outwardly, the need of education. The broadening horizon of the working man in Mexico is a consummation devoutly to be wished, and

neither the authorities nor the great majority of employers could have an objection to a propaganda which has this in view. The working man of Mexico has yet to be taught the discipline of character, the evils of intemperance, and the importance of saving and economy. From what I have seen he is likely to take these lessons to heart sooner or later—probably later; any startling advance in his ethical or his intellectual equipment must not, therefore, be looked for at once.

CHAPTER LX

Mexican trade with the United States—Comparison with British—Imports and exports for 1906-1907—American methods—Consular criticisms—Coal and oil imports—Furniture and customs duties—Pianos—Cotton manufactures—Cement and foreign competition—Improving the occasion when visiting Mexico—Mail-order business and its profits.

It is perhaps only according to the laws of compensation that the U.S.A., which have succeeded in recording but slight headway in competition with European countries in their trade relations with South America, and who have failed in their efforts to capture the Oriental trade, in spite of strenuous exertions made in both quarters, should have established a domination over the foreign market in Mexico. In 1906 one-fourth of the imports and one-seventh of the exports of the U.S.A. came from or went to Latin-American countries, including Mexico, which, however, took $51,181,674 out of a total for all the countries of $181,671,296. For the same period the U.S.A. imported from Mexico goods to the value of $50,218,018 out of a total for the Latin-American countries of $308,565,786.

As I give in the succeeding chapter the figures of British trade with Mexico, comparison is an easy matter. Were the business of the U.S.A. as large with other Latin-American countries as it is with Mexico and Cuba, its total returns would be more than doubled. In view of the profitable trading which the U.S.A. is doing in Mexico and, with the exceptions to which I have referred, with other parts of the world, it is scarcely surprising to find that the wealth of that remarkable country is growing at the rate of $10,000,000 *daily* as compared with the rate of $7,000,000 *weekly* to which Great Britain can lay claim. The current year seems destined to prove an exceptionally brilliant one from a trade point of

VERACRUZ.—The extinct volcano of Orizaba, State of Veracruz, 5,295 metres above sea level.

view for the United States in Mexico, if one may judge from the manner in which it has commenced. In the month of March this year, for instance, Mexico despatched goods to the U.S.A. to the amount of $5,663,444, being an increase of $1,000,000 over the month of March of the previous year; while, for the same period, she imported from the U.S.A. $5,775,902, being a little in excess of the amount for March, 1906. It is impossible to lay too much stress on the many natural advantages which the U.S.A. possess over any other country in their trade relations with Mexico. They are only divided by an imaginary geographical line, and the railways which run regular daily trains between New York and other large cities and Mexico City, carrying freights and passengers, are supplemented by a large number of steamships, which ply regularly between American and Mexican ports. Furthermore, Mexico City being but 4½ days' journey from New York or Washington, as against 12 to 14 days from Mexico, London, Paris or Berlin, the number of Americans who come down into Mexico to pass their vacations, or upon flying business-trips, number 100 to every 1 from Europe. The intelligent traveller, whether he be a man of commerce or merely a man on pleasure bent, remembers the axiom—"*Occasio ægre offertor, facile amittitur.*"

Mexico may be said to take practically 66 per cent. of her imports from the U.S.A. and to send 80 per cent. of her exports to their markets. Manufactured articles, machinery, coal and oil are the articles forming this larger share which Mexico takes from the sister Republic, while sisal, copper in ore and pigs, lead, hides and skins, as well as coffee and other tropical products, are the principal articles forming her exports to America. In spite of this halcyon state of affairs so far as the U.S.A. are concerned, there are not wanting adverse critics of many of the methods pursued by Americans in dealing with their Mexican customers, the bitterest criticism and the severest application of the lash of satire emanating from the American Consular body resident in Mexico. The late Mr. James R. Parsons, Consul-General for Mexico, who has since been replaced by Mr. Alfred Gottschalk, called attention upon several occasions in official documents to the slovenly method in which goods were despatched from the U.S.A. to

their destination, and also to the rank dishonesty which manufacturers frequently displayed in sending in bulk articles quite inferior in quality to those submitted in sample. The same errors which British manufacturers made, and still continue to make, in spite of all warning and advice, namely, that of ignoring the Customs' House authorities' instructions for invoicing, are committed by Americans, although to nothing like the same extent.

It is rather amusing to observe how British Consuls frequently advise British manufacturers to "emulate the Americans" in their methods of business; while the American officials are just as strenuous in their advocacy of "British methods," the one apparently not being cognisant of the faults which are so glaring in the other, and laying to their credit as "enterprising and capable salesmen" all the business which they succeed in securing.

For my own part, I fancy that the palm must be given to the Americans, who are certainly more enterprising than the majority of our people, and less prone to overlook the minor but still essential details laid down by the Mexican Customs' authorities.

There is nothing like truth, as the late Mr. Parsons seemed to appreciate, for in writing of his fellow-countrymen in Mexico, he did not hesitate to apply the *fortiter in re* when perhaps the *suaviter in modo* would have proved as serviceable. One piece of sound advice, however, which he gave to his countrymen, might, with equal advantage, be taken to heart by Britishers.

Although the popular notion prevails that mining promotions are the most fruitful of swindles, Mr. Parsons declared his investigations led him to believe that in Mexico agricultural projects offer just as many opportunities to the unscrupulous. The familiar process of trading on respected names is quite as common in Mexico as it has become in the U.S.A. and Great Britain, and, as the late Consul-General warned his countrymen, it should not be concluded that a Mexican investment was inherently sound because men of reputation and wealth, both in Mexico and the United States, were interested in it. By trading on these names, Mr. Parsons pointed out, "the promoters sell stock long after

those with the slightest knowledge of the prospects have recognised them to be fakes. Frequently, the names of well-known men are used absolutely without authority, to boom fraudulent propositions. But often such men take 'fliers' influenced by the wily statement of the promoter or by the weight of their names. With a thousand irons in the fire at home, these men know really nothing about Mexican enterprises, and can afford to lose such small investments with perfect equanimity."

Already a great quantity of American-made furniture goes into Mexico, the local supplies being wholly inadequate to the demand. There is scarcely a private office, bank, or public building which one enters that does not contain obviously American furniture, for its mathematical angularity and generally unattractive appearance are unmistakeable. Thousands of roll-top desks, revolving-chairs, tables, book-shelves, settees, sofas and "rockers," find their way into Mexico from across the border, in spite of the heavy duties which are imposed. Chairs, beds, dressers and bedroom-tables cannot, however, enter on account of these duties, and the consequent high price at which they are retailed. Pianos cannot be made sufficiently cheaply in America to sell in Mexico, all such instruments coming from Germany, the Teutons with their cheaper material and cheaper labour being able to manufacture an article which entirely outstrips the American, or that of any other country. Quantities of good American agricultural implements are being introduced into Mexico, the more intelligent among the haciendados at length consenting to purchase after years of persuasion. American light-bodied carriages are also becoming popular, as are a certain number of American automobiles, although the favourites among the wealthy classes are still those of French, Italian and British make. The boot and shoe trade is practically monopolised by U.S.A. houses; but Mexican as well as American customers, of whom there are a large number, prefer British-made clothes, just as Mexican ladies prefer French to German or American-made *lingerie*, etc., etc. Groceries, stationery, office articles, books, magazines and newspapers are predominantly American.

I have elsewhere given particulars of the imports of cotton,

wheat, coal, etc. into Mexico from the U.S.A., and it is therefore unnecessary to make further reference to these, all-important as they are. Railroad supplies, even most of those employed by the British-owned railways, come from the U.S.A., comprising cars for steam and other railroads, locomotives, car-wheels and steel rails, as well as tramcars, switches, points, semaphores and weighing machines, etc. Electric apparatus and machinery are among the more important items of trade between Mexico and the sister Republic; while over a million dollars' worth of hardware, saws, tools and firearms come annually into Mexico. The purchases of pumping-machinery, stationary-engines, boilers and general machinery exceeded $4,000,000 last year, and promise to amount to more than that for the current year. Of cotton cloths and other manufactures of cotton, the annual purchases are still about $650,000, although the Republic has many mills of its own; over $1,000,000 of explosives, and about $850,000 worth of copper-goods, as well as large quantities of cement, aggregating 75,000 barrels per annum, are imported. British cement is undoubtedly the best if the more expensive article, but cheap German and Belgian stuff is sometimes preferred. Messrs. A. Grimwood and Co., of Mexico City, represent one of the best British cement firms and do a large turnover annually. Mexico likewise purchased $1,000,000 worth of sewing machines, typewriters, printing presses, etc., from the United States last year, and other important items, the number of which is continually increasing, were safes, scales and balances, stoves and ranges, manufactures of brass, chemicals, drugs, dyes and medicines, cordage, china and earthenware, lamps, paints and colours, toys and wooden-ware. The lighter and cheaper kind of harness for which American houses are famous, is not very popular in Mexico, those who can afford it preferring the more solid-made British goods, both saddles, bridles, reins and leather riding-boots of British manufacture.

Among the many visitors who come from the U.S.A. to spend a few weeks or months in the winter in the delightful climate of Mexico are a considerable proportion of merchants and merchants' travellers, who do not consider it *infra dig.* to devote a portion of their time to introducing their manu-

factures to the notice of Mexican dealers, and this fact accounts in no small degree for the popularity which American goods generally meet with. I have known of several cases in which enterprising young Americans, who have come down into Mexico for brief vacations, have returned laden with orders, which at the outset of their journey they had never even contemplated. The intelligent business man considers every opportunity which presents itself to him, no matter from what direction it may come, or under what circumstances it may occur.

The small mail-order business has been recently established between the United States and Mexico with remarkable success, a large number of residents in the northern part of the Republic finding it possible to purchase goods in the U.S.A. and have them despatched by parcels' mail cheaper than they can buy them in Mexico itself. I understand that during the Fair held in San Antonio last year, the merchants of that city sold to Mexicans visiting that country no less than $250,000 gold (£50,000) of goods. That the mail-order business between the two Republics is increasing consistently is shown by the postal receipts and customs returns.

CHAPTER LXI

British trade—Former position—Decline—American supremacy—High positions and influence of Americans in Mexico—Mexican cotton goods—Iron, steel, coal and other manufactures—Methods of doing business—British shortcomings—Customs regulations—Marking and invoicing goods—Mexican foreign trade—Some British concerns.

THERE are traditions—and unfortunately they are little more than traditions to-day—that at one time British commerce attracted the envy of the world. And among the many countries where it flourished was Mexico. "Yes," said one of the Ministers to me, "some forty years ago you British were practically the dominant factors in this country's trade. You came here when no one else would look at us, except as a possible tit-bit for internal consumption and absorption; you lent us a few millions to open-up our mines, build our earliest railways and replenish our empty Treasury. And then, just when you might have reasonably anticipated some fruitful returns from the seed which you had so plentifully and so pluckily sown, what happened? You left the country! Can you tell me *why?*"

I could not, and cannot to this day. Does anyone else know? It is not at all like the Britisher to thoroughly warm the nest of trade and commerce in a new and difficult, though promising, country and then calmly desert it so that a new and enterprising rival, geographically much better situated than he, may come in and take possession. Nevertheless that is the story of British and American trade relations with Mexico. We had our chance and lost it. "Chance could but happen once," as Browning has told us, "and we missed it—lost it for ever." No; we can never overtake the ground we have wilfully and most stupidly forsaken, and it serves us right that the clear, bright and ever-watchful American has

stepped in and secured practical possession of one of the finest and safest markets in the whole world. Compare the proportions of foreign trade with Mexico to-day, and see how the American predominates everywhere. Is he not more numerous in population? Does he not control the railways, the banks, the insurance offices, run the newspapers, own the finest stores and manage all the great mines of the Republic? And does he not do them all uncommonly well? Now and again one comes across an all-British enterprise, such as the Mexican Railway, the Southern Railway, the Montreal Bank, a few of the better-known mines. Messrs. S. Pearson and Son, Ltd., have some £4,000,000 or £5,000,000 from first to last invested in commercial undertakings in Mexico; but, for the rest, the best that can be said for the Britisher is that he is found harmoniously working side by side with Brother Jonathan, and well content enough to do so, for the relations between the two Anglo-Saxon races in Mexico are *aux mieux*.

Nevertheless, it would have been as well to my insular mind had we maintained our one-time enviable position in Mexico's trade; and it is with no disrespect to, nor the least particle of ill-feeling against, our highly-esteemed friends the Americans, if I say I would that my countrymen occupied the same lofty position, the same commanding influence and the same pre-ëminence in commerce and finance in Mexico that they do.

And now let me add that all these have been well and honestly won by the Americans, who, taken as a body of men and women, living in a foreign country and among a people strange in religion, in thought and in speech, have all along shown themselves high-minded, thoughtful, conscientious and enterprising, generous in their considerateness for others' susceptibilities and careful to refrain from any semblance of political or religious bias in all their dealings. The history of the Americans in Mexico is a history of which any alien country might feel proud.

Strong reasons make strong actions, and there is always patent, to those who take the trouble to search for it, the cause of an effect. One important factor in the falling-off of British goods in the Mexican markets, for instance, is found in the increasing independence of that country. Take imported

cotton goods as an example. There are now 120 cotton mills in the Republic, consuming 15,000 tons of raw-cotton annually, which naturally means a diminution in the purchasing of similar merchandise from Great Britain. Coal, which is at present largely imported from Great Britain, will shortly be less in demand in consequence of the success of the coal-fields in Coahuila and Sonora. Steel and iron are being manufactured locally, and other specialities also. British machinery, engines, boilers, etc., which stand very high in the opinion of the natives as regards endurance, have been largely ousted from Mexican markets by the nearer position of the U.S.A., and the energy which is displayed by American commercial travellers in obtaining orders. They seek for them, while the Britishers calmly and stupidly wait for them to come. Failure is also not unconnected with the hesitancy of British manufacturers, who have been timorous of trusting Mexican buyers with credit, a suspicion which is as absurd as it is unfounded. No great international trade ever yet was or ever will be built-up upon a strictly cash-basis, credit being the foundation of all great commercial and financial interchange. As Benjamin Disraeli once said: "However gradual may be the growth of confidence, that of credit requires still more time to arrive at maturity." Why not give it this time? British business houses have not hesitated to give credit in other parts of the world. Why should they not as freely extend it to Mexico?

It is also a great mistake to imagine that Mexican trade can be built up by appointing an agent to order goods, or from one journey of a salesman who is probably as inexperienced in the use of the Spanish language as he is in Mexican methods. Even minor transactions are carried out more slowly in Mexico than in other countries, and procedure must be undertaken with care and perseverance and infinite patience. New inventions, however meritorious or ingenious, cannot be introduced in a day—or even in a week; and the superiority of any article offered must be practically demonstrated before the cautious Mexican will bestow his patronage upon it. Therefore, manufacturers who would wish their goods employed in Mexico must either themselves go to the country and stay there for a period, or send a resident repre-

STATE OF JALISCO.—Volcano of Colima, 12,000 ft. high.

sentative who is willing to treat with the natives in their own fashion, and, if necessary, conform to their wishes and tastes as regards colour, design, methods of packing, wrapping, construction, etc., instead of adhering with a fetish-like persistency to ancient British formula.

Mexican commercial customs differ in several respects from those in force in Great Britain and in the United States, but they are the customs of a nation and of centuries, and foreign business-men must of necessity conform to them. It is quite a mistake to suppose that Mexican customs or regulations are any more onerous or untenable than those of any other Spanish-American country. So far from this being the case, I am decidedly of opinion that they are less difficult, less onerous, and much more to be relied upon. In all classes of goods, except a few relating to live-stock, the customs duties are based on weights and measures; while in regard to spirits, such as brandies, wines and whiskies, they are calculated on the gallon. In regard to boots, shoes and such-like manufactures, dues are levied on the pair. In cloth fabrics, the length and width of each piece must be given, including fringes. The metric system is used, and here, again, British manufacturers should thoroughly acquaint themselves with the beneficial simplicities of the metric system. My experience is that British exporters send out their invoices made out in "£ s. d.," while their weights are computed in "lbs., oz. and dwts.," or "tons and cwts.," absolutely ignoring the essential fact that nine Mexicans out of every ten do not understand what these weights and measures mean, while the tenth, who perhaps does, declines to have anything to do with them. Then, again, in regard to despatching invoices. The Mexican customs authorities demand that these should be sent out in duplicate—bills of lading, consular invoices and other necessary trading documents. The goods to be despatched to the importing houses must be sent to the custom-house broker at the port of import, together with a copy of the invoice, manifest and a packing-list, while the original bill of lading and invoice must be sent direct to the consignee. The packing-list must show the marks, countermarks, the number of packages and contents of each, and the principal material from which each article is made. If, for instance, an article

is plated, the invoice must show with what material it is plated, as well as the gross weight; the kind of goods in each package, the legal weight of each package, the name of consignee, destination, and the name of the custom-house broker to whose care the freight is consigned, must all be set forth fully and clearly. In all cases the actual value of the merchandise at the point of shipment should be represented. If the articles are found to be undervalued they are subject to a fine for undervaluation, although the values-description is practically of minor consequence, since all duties are specific. The above rule applies also to declarations as to weight and class of merchandise, which must be given correctly, otherwise a fine is imposed, and sometimes the goods are confiscated.

Last year a concern known as La Compañia Importadora Britanica S.A. was formed to deal in goods of British manufacture almost exclusively, the principal store being located at Monterey, in the State of Nuevo León, and being run on the same lines as the co-öperative stores in London and the catalogue houses in the U.S.A. I do not know how far the venture succeeded, or if it succeeded at all. The Mexican National Packing Co. was formed in the month of January last to operate under special concessions from the Government of Mexico with a capital of $2,000,000 (£400,000). Although the capital was sought for and obtained in England, the undertaking seemed to be practically American and Mexican, but the London Advisory Board of Directors contained the names of Sir William F. Haynes-Smith (Chairman, Land and General Trust, Ltd.); Sir William Wiseman, Bart. (London Manager of the Imperial Food Supplies, Ltd.); and the Hon. Adolfo Bulle, Consul-General for the United States in London and its dependencies. A large number of Mexican mines in which British capital is invested will be found described under the Mining Chapter.

The marked falling-off in the values of imports into Mexico from the United Kingdom, noticeable in 1906, is no less apparent in the figures for 1907. Take but one month as an example—say the first month of the present year—and note the enormous difference between the United States and other countries. The countries which furnished the major part of

the merchandise entering through the Mexican custom-houses in January, 1907, were as follows:

U.S.A.	$13,214,848
Great Britain	2,227,640
Germany	1,947,977
France	1,347,772
Spain	583,470
Belgium	207,300
Italy	134,880

The following figures relating to Mexico's foreign trade for the first six months of the fiscal year 1906-1907 may prove of interest, showing as they do an increase of no less than $7,122,374 over the same period for the previous year, and unfortunately displacing Great Britain as the second most important country after the United States in favour of Germany:

Imports, first half of fiscal year, 1906-1907:	
Animal substances	$10,013,379.29
Vegetable substances	13,471,596.62
Mineral substances	37,028,191.07
Dry goods	13,240,840.87
Chemicals, drugs, etc.	4,145,493.60
Beverages	3,372,205.48
Paper and applications	2,922,831.28
Machinery and apparatus	13,661,040.53
Vehicles	4,090,064.94
Arms and explosives	2,058,156.83
Miscellaneous	4,524,705.53
Total imports	$108,598,506.04
Imports for same months in 1905-1906 ...	87,495,560.85
Increase in 1906-1907	$21,102,945.19

The various countries which furnished these $108,598,506 of merchandise during these six months were:

United States	$67,275,176.63
Germany	12,573,055.12
Great Britain	10,303,207.60
France	8,891,869.10
Spain	3,817,785.60
Belgium	1,434,761.94

The above figures represent Mexican *pésos* (value 2s.), and I have not given the statistics of such countries as Japan,

Hindustan, Holland, Portugal, Norway, Austria, Hungary, etc., whose contributions are too small for notice. It will be seen from the above, anyhow, that the U.S.A. outstrip Great Britain by something like 600 per cent. It is not possible to say whether the falling-off in British imports is general or confined to one or more of a particular class of commodities without going too minutely into the subject. It should be sufficient for the ordinary reader to be aware that British trade in Mexico is not as flourishing as it should and might be, and that heroic efforts are necessary to restore it to even a semblance of its original proud position.

In the preceding chapter, in which I have dealt with American trade, it will be seen how very different is the condition of affairs with our enterprising cousins across the water.

CHAPTER LXII

Mexican manufactures—High tariffs and protection—German competition and enterprise—Candle manufacture—Plate glass—Enormous duties—Malt factory—Asbestos—Paper-making—San Rafael Works—A successful company—The firm of G. and O. Braniff—Westinghouse and other American machinery—Breweries—The Cerveceria Moctezuma—Notable machinery.

One is so much accustomed to associate the Republic of Mexico with mining—in much about the same manner as Brazil is remembered by many in relation to "nuts"—that little note is taken of the country as an industrial and manufacturing centre. One day the rest of the world will awaken to the unpleasant fact, palpable enough to those who visit the country and see the prevailing condition of things with their own eyes, that Mexico is ready to close her door *in toto* to all but a very few manufactured articles, and to levy exceedingly heavy duties upon others. Every time the Tariff is altered the position of the Republic and its independence upon outside sources is found to be stronger and stronger, and it is a strength, moreover, which endures, rather than a spasmodic or sporadic effort. In only one case of which I know has the Government raised a protective duty when once imposed, which fact speaks as well for the caution with which such duties are originally levied as the broadmindedness which controls their application.

With that keenness of perception which distinguishes the German from among all the nations of the earth where self-interest is concerned, the Teutons have to a great extent discounted the closing of Mexico's doors to manufactured articles from abroad by establishing here a number of bureaux, banks, and branches of their home-factories. These are to be found in many important industrial centres, such as Toluca, the

capital City of the State of Mexico (which must not, however, be confused with Mexico City, the Capital of the Federal State of Mexico), and where there is a German Brewery and a German glass-bottle factory managed entirely by Germans and employing German capital almost wholly. Most Germans learn Spanish very quickly, and although they speak it with a strong accent, they get along remarkably well, and snatch trade while other nationalities are beginning to look about them for opportunities. But even Germany is destined to feel the effect of Mexico's gradual emancipation from the thraldom of foreign supplies, and it will need all the ingenuity of the Teuton to worm a way through the stringent tariffs which the Government is even now considering for the coming year.

To give but one example. Whereas some 10 or 15 years ago Mexico imported all her fine candles—and many millions are used annually in the service of the Roman Catholic Church—from France, while Germany supplied a much cruder and commoner kind of article, vulgarly known as "dips," to-day the Republic is manufacturing 90 per cent. of the candles used. In 1901 the exports of candles to Mexico from the United States amounted to $57,900 (£11,580), while in 1905 they did not exceed $54,000 (£10,800), and this year they will be nearer to $50,000 (£10,000). The duty at the present time amounts to 60 centavos a kilogram of candles, manufactured of beeswax, and 18 centavos a kilogram of candles made from stearin. The manufacturers of Mexico have taken steps to have this already prohibitive duty still further augmented, and there is little doubt but that the Government will accede to the suggestion. Strangely enough, all the paraffin and stearin used locally in the manufacture of candles comes from the United States, while the wicks are imported from France. A factory is, as a matter of fact, producing wicks, but they are poor and inefficient, and so far have not affected the foreign supply. I may mention that one candle-factory in Mexico at the present time is selling candles of fine beeswax to the church authorities amounting to $1,800 Mex. Cy. (£180) a month, while I am informed that there are at least $10,000 (£1,000) worth of candles used throughout the country every month at religious festivals.

Plate glass is another important article which will erelong

be locked out of Mexico. Already the tariff is sufficiently high, one would say, to protect the home manufacture, the glass being shipped at the minimum of 6,000 kilos, first-class rate. This means that a pane of ordinary plate glass, the value of which may be £10, costs about £35 if brought into the Capital or shipped to any other part of the Republic. When a large show window gets broken, therefore, as not infrequently happens in the more narrow streets of Mexico City, the cost of replacing it is enormous—and there is no Plate Glass Insurance Co. in Mexico. Nevertheless, it is proposed to still further increase the tariff.

Some Germans have just completed and opened a new malt factory, which will supply practically one-half of the needs of the entire Republic. These amount to 1,200 bushels per day, and the new factory is turning out 600 bushels daily. Another instance of Teutonic enterprise. Whereas 10 years ago no chemical factory was to be found throughout the length and breadth of Mexico, to-day there are 6 of them, all of which are doing excellent business. Dynamite, sulphuric acid and other chemicals are now all supplied locally, which is a matter of considerable importance to the United States, whence all these things came. Birmingham's consignments of nuts, screws and bolts is falling off, and as a factory has just been commenced to supply the same articles first-hand, the imports will hereafter gradually dwindle still further. Soap is now made in considerable quantities locally, the Jaboneria de la Laguna, one of the largest soap factories in Mexico, finding the industry sufficiently remunerative to enable it to pay its shareholders 35 and 40 per cent. The capital of the Company is only £250,000, and the £10 shares stand at £45 each. No "Soap Trust" is deemed necessary in Mexico.

There are just one or two things which Mexicans cannot succeed in, however, although to do them but bare justice they try their utmost. One is to make shoe-polish. There was a factory here which bravely struggled to get its manufactures adopted in place of the American stuff so freely used here; but unfortunately the factory could not compete, and has recently shut down. All such importations come here from France and the United States, and Great Britain has not even a "look-in." Asbestos is another product which has failed to

succeed, the Mexican quality being very poor and of small quantity. The United Asbestos Co., Ltd., of London, does a capital and increasing trade here, the best Italian product fetching from £100 to £200 a ton. The Canadian brings about half of this.

To the late Mr. Thomas Braniff is due the credit of having started the first manufactory of paper upon a modern and extensive scale, known as the San Rafael Paper Works. This was about 16 years ago, his partner being Mr. José Sanchez Ramos, whose name I have had occasion to mention in this work in connection with several other useful and successful enterprises. The two pioneers installed a 10-ton hydro-electric propelled paper factory at the foot of the Ixtacchihuatl volcano, and immediately in the centre of the raw material as represented by a vast area of virgin forest. A few years later, the Progréso Paper Factory was established by a group of Spanish capitalists. An amalgamation of these interests soon followed, and under the new combined organisation a great impetus was afforded to the paper-making industry of the Republic.

On the death of Mr. Thomas Braniff, his two sons, Oscar and Thomas, entered upon the management of the Company, while they were joined by Mr. Julio Limantour, a brother of the Minister of Finance, and a prominent local banker. The policy of the enterprise was now that of further expansion. The whole of the Company's important water-power concessions were developed, the capacity of the factory was doubled, and the best English, Norwegian and German paper-makers were placed at the head of the technical departments, which, in conjunction with the practical administration of Mr. José de la Macorra, the general manager, brought about a complete transformation in the paper-manufacturing industry of Mexico.

To-day the San Rafael Paper Works produce about 70 tons of paper *per diem*, of all grades, and directly supply the general market of Mexico. Having an unlimited amount of capital, an abundant — indeed almost exhaustless — water-supply, vast untouched timber-lands and a continually increasing *clientèle*, the Company purposes further and further increases of output, not only in order to keep up with the demand but also with the idea of lowering the prices of their product

to the public. As an evidence of the latterly successful character of the undertaking, I may mention that, while the shares of the Company but two years ago stood at $65.00 for the fully-paid $100.00 share, to-day they cannot be bought under $140. They are officially listed upon both the Mexican and the Paris Stock Exchange, where active dealings are frequently observed to take place. The capital of the Company stands at $7,000,000 (say £70,000).

Messrs. G. and O. Braniff and Co. represent several high-class firms in the United States, such as the Baldwin Locomotive Co., the Westinghouse Electric Manufacturing Co., A. B. Farquahar and Co., and others. In connection with their electrical work, they have already installed about 150,000 h.p., always using the Westinghouse electrical machinery, with which, as stated, they are closely affiliated. It may be said that with one or two other firms of American and German manufacturers, they occupy a foremost position as electrical engineers and contractors.

All the latest agricultural machinery of the firm of A. B. Farquahar and Co., of the Eastern United States, is handled by the firm of G. and O. Braniff and Co., and in view of the extremely conservative character of the Mexican agriculturist, to push these inventions is no easy undertaking. It is perhaps fortunate that the members of the firm themselves are considerable employers of agricultural machinery, each of them owning extensive estates which produce various kinds of crops, situated in different portions of the Republic and contending with as many different climatic and economic conditions. Practical requirements in the way of adaptations and improvements for the special use of Mexicans can thus be obtained at first hand, and the manufacturers have proved themselves ready to profit by them. Mr. Oscar Braniff, for instance, is now installing an experimental agricultural station at his famous Hacienda Jalpa, to which fuller reference is made elsewhere in this volume.

While the native Mexican of the lower class sticks leech-like to his beloved *mescal*, or *tequila pulque*, and refuses all and every kind of foreign-made substitute, the foreigner and the higher-class native are great lovers of beer, and, in a lesser degree, of European or American liquors. Distilleries of

the home-grown plant, the maguey, are found in great numbers and widely-distributed. Every State has several, and can even count some hundreds of such distilleries, which, with the cultivation of the producing-plant, spell a fortune, as a rule, for the proprietors. To-day there are certainly no fewer than 2,300 establishments devoted to the manufacture of spirits from the maguey-plant, the sugar-cane, grapes, grain, etc., and the amount which they produce annually may be put at some 35,000,000 litres of spirits, most of this emanating, however, from the sugar-cane, and not, as may be supposed from the enormous number of maguey-plants which are seen, from the latter. As a matter of fact, while 22,687,487 litres of spirits were produced from the cane last year (1906), only some 10,742,655 litres came from the maguey. There are some 2,500 stills in operation in the Republic, but the great majority are still being worked by old plant and machinery. Besides the deadly *mescal* and the nauseous-looking *pulque*, the lower-class Mexicans consume great quantities of *aguardiente*, otherwise "fire-water," a powerful intoxicant which makes devils of men, and is mainly responsible for the murders and assaults which occur from time to time among the people.

There are at least a half-dozen prominent and highly-successful breweries, the finest, perhaps, being that at Orizaba, and known as Cerveceria Moctezuma. This is an enormous establishment which has risen from very humble beginnings, until it employs to-day about 450 men and boys (an especially large number of the latter, who prove quick and intelligent youngsters), and producing 500 to 550 barrels of lager and 100,000 bottles of beer almost every day throughout the year. Ten years ago, 15 barrels and some few hundreds of bottled beers were the average daily output. The brewery additionally manufactures 50 tons of ice, of which 40 are sent down to Veracruz (82 miles away), and the balance consumed locally or packed with the beer sent to the various parts of the Republic. The brewery is about 12 years old, and is owned by several French, Swiss, German and a few Spanish shareholders. The capital is $2,000,000 (£200,000).

The beer, which is a delicious-tasting and crystal-clear liquid, is brewed from Bohemian hops (Saas), which cost the

MEXICAN COTTON ESTATES.—Casa Grande Zaragoza plantation, Tlahualilo

COTTON FIELD, Tlahualilo, one year's growth.

See p. 253.]

Company from 60 to 70 centavos (say 1s. 4d. to 1s. 5d.) a lb., as against the United States grown hops at 15 to 18 centavos (say 3½d. to 4½d.) a lb. But there is no comparison between the excellence of the two qualities, and the amount of the beer which they produce. The water used is taken from the local river, the Rio Blanco.

Practically the whole of the magnificently-equipped plant and machinery are from the United States, mostly the product of Messrs. Vilter and Co., of Milwaukee, the other supplying firms including the Goetz and Fladin Company of Chicago, the Loew Supply Company of Cleveland, Ohio ; Messrs. Kaestner and Co., of Chicago, the Spalcher Cooperage Company, of St. Louis ; and Messrs. Henos and Keller, of Michigan, who manufactured the elaborate bottle-washing, filling and corking machinery. The Manager, Mr. Neumayer, a German of great experience, has helped greatly to raise the Moctezuma Brewery at Orizaba from comparative obscurity to a commanding position among the manufacturies of the Republic.

CHAPTER LXIII

Some prominent enterprises—The Mexican Light and Power Co.—Valuable concessions and contracts—Mexican Government Financial Agency—Compañia Carbonifera—Anglo-Mexican oil-fields—Associacion Financiera—Mexican Mining and Industrial Corporation—Mexican Trust Co.—Anglo-Mexican Garage—Some prominent financiers as directors—Recent and existing British corporations in Mexico.

The greatest commercial undertaking from a capital point of view is undoubtedly the Mexican Light and Power Co., a Canadian Corporation, which, from first to last, has some $14,000,000 (£2,800,000) invested. It owns, besides the Mexican Light and Power Co., the Mexican Gas Co., the Mexican Tramways, the Puébla Tramways and Electric Co., the San Ildefonso Co., and several other minor enterprises either wholly or in part. The original Mexican Light and Power Co. bought out the well-known concern of Siemens and Haltske Co., which held all the street-lighting contracts for Mexico City, and they have since then absorbed one concern —including that owned by Antony Gibbs and Co., of London —after another. Some of the leading financiers of the Republic were interested in the San Ildefonso (Compañia Explotadora de las Fuerzas) before the Canadian absorption. Altogether this great corporation owns some 8 different plants, and employs over 5,000 men. It is cleverly and, on the whole, well-managed, and occupies an important position in Mexican commercial circles.

To afford some idea of what this company means to the industrial world, of which Mexico City may be termed the hub, it may be said that it supplies all the electric light of the City of Mexico itself, as well as the gas and the motive power to work the 600 odd miles of tram-lines; it sends its

power to the far distant gold-mines at El Oro (the Esperanza, the El Oro and the Dos Estrellos), it supplies the power for pumping potable waters for the Federal City, and provides the motive force for all its great machinery. Some of its contracts extend to twenty years and longer, and even now its full service of light and power is requisitioned. It derives its power from some magnificent natural falls at Necaxa, about 100 miles from Mexico City, where some colossal engineering works have been in progress for several years, and are now almost completed. These produce about 200,000 h.p. of electric energy. Sir George A. Drummond, President of the Bank of Montreal, is the President of this Company, and Mr. Charles H. Cahan a Director and Secretary, with the greater part of the active management in his strong and capable hands. Much of the great success of the Company is due to the enterprising management of Mr. Cahan.

The Mexican Government maintains, at an annual expenditure of some £3,000, an admirably-equipped London Financial Agency, at Finsbury Pavement House, E.C. Señor Luis Camacho is the Resident Manager, and Señor Manuel Diaz Barriga Chief of the Information Bureau. Here are to be found maps, books, pamphlets and other *data* of interest to those desiring to know something about Mexico, and the Agency has recently added a large and well-stocked Museum, showing the various minerals, ores and raw materials produced in the Republic. With the characteristic courtesy and good nature of their nation, Messrs. Camacho and Barriga put themselves to any and every trouble to satisfy the inquiries of their callers and correspondents, and the Mexican Government have taken no wiser or more successful step than the establishment of this Financial Agency in London.

The Compañia Carbonifera de Monterey paid its first dividend of $5 per share last May, the capital being $1,000,000.

A new venture launched in the month of May last was the Industrial Engineering and Supply Co., of which Mr. James A. Peirce is the General Manager and Mr. W. W. Wheatly the President. Both gentlemen were long identified with the Mexican Electric Tramways Co., and were mainly responsible

for the improved management of that concern. The new Company represents some of the leading American and European factories, and deals in all such commodities as machinery, tools, supplies for mining, milling and construction work, etc., and carries a large stock of electrical supplies.

In June last the Anglo-Mexican Oil Fields, Limited, was introduced on the London Market with a capital of £250,000, to work oilfields in the Southern part of Mexico, namely the State of Chiapas. The properties are located about nine miles from a river, and therefore the question of transport at least should be easily settled. It is hoped that the greatest customers for the field's productions will be found in the Interoceanic and Mexican Railway Companies, but overtures to these two concerns to adopt oil fuel in place of coal have been made before, and without success. But the primary thing will be to find the oil in sufficient quantities—the market for it can be found afterwards.

The Associacion Financiera Internacional holds a charter from the Mexican Government, its object being to encourage the investment of foreign capital in the Republic. President Diaz has always taken a keen interest in the career of the concern, which has shown much energy and enterprise in its management. The Associacion has connections with a large number of similar bodies scattered about the United States and with some in Europe, and maintains correspondence, I understand, with some 15,000 or 16,000 different firms. The ruling spirit is Senator José Castellot, who has given up much of his time to its management, his son being in charge of the legal department, one of the most important.

The Mexican Mining and Industrial Corporation was registered last May with £153,750 capital. The object is to adopt an agreement with the Venture Corporation, Limited, and carry on in Mexico the business of bankers, financiers, concessionnaires, merchants, miners, etc. This capital is, roughly speaking, $1,537,500 Mexican currency.

The Mexican Trust Co., which was formed as recently as last April, is the only concern of its kind in the Republic, having for its object the financing and promoting of purely Mexican enterprises, without there being any necessity to resort to foreign capital. A very powerful and representative

board of directors is in charge, including Colonel Félix Diaz (Chief of the Police in the Federal District, and nephew of the President of the Republic); Mr. Robert G. Carlisle; Señor Juan A. Certuaba; Señor Melesio Parra; Brigadier-General Joaquin Beltrán (Commander in Chief of the Military College of Mexico); Congressman Irineo Paz; Congressman Fidencio Hernandez, and Mr. Arthur C. Morris, of Toronto, Canada.

Another recently-formed enterprise is the Anglo-Mexican Garage (Garage Anglo-Mexicano S.A.), which has the exclusive agency of some of the best British manufacturers of automobiles. I learn that the establishment of this concern has already proved an unqualified success. The members comprising the board of Directors include Messrs. Julio M. Limantour, Thomas P. Honey, Porfirio Diaz junior, Walter Morcom, Andrés Bermejillo and José V. Burgos. The idea, which I believe originated with Mr. Thomas P. Honey, is an excellent one, since the sale of cars in the Republic of Mexico, and the number of repairs which progress over the many immature roads demands, are continually increasing; and as plenty of money is being made in the country at present, the sale of high-class machines may be expected to continue.

A few of the British corporations which have been formed to carry on business in the Republic may be given as follows:—

	Capital.
The Mexican Railway	£7,820,780
,, Southern Railway	1,589,266
,, Interoceanic Railway	5,419,345
,, S. Pearson and Son, Ltd.	5,000,000
,, Esperanza Mines, Ltd.	450,000
,, El Oro Mining and Railway Co., Ltd.	1,600,000
,, Jalisco Mexican Mining Syndicate ...	15,000
,, United Mexican Mines	5,000
,, New Anglo-Mexican Co.	10,000
,, Santa Beatriz Syndicate	10,000
,, Salinas of Mexico, Ltd.	325,000
,, Guanacevi Co.	225,000
,, Consuelo Mines	20,000
,, Mexican Options	10,000
,, Sierra Jaurez Exploration Co. ...	25,000
,, Congreso Copper Co.	20,000
,, Mexico Syndicate	19,000
,, Reforma Mines Syndicate, Ltd. ...	56,400
,, Mexican Smelting Corporation ...	150,000
,, Borranca Mines	160,000
,, Anglo-Mexican Oil Fields	250,000
,, El Progréso Mexican Mines ...	50,000

CHAPTER LXIV

RUBBER: Unprofitable enterprises—Mexican rubber—Species—Guayule—Opinions regarding value—First discovery—American exploitation—Anglo-Continental Rubber Co.—Substitutes. SUGAR: Successful cultivation—Improvement in quality—Leading districts—Average production—Prices, past and present—Future possibilities—Modern methods—Old and new mills—Beet sugar—Prospects of superseding cane.

PROBABLY no product of Mexico has been more written about, nor has proved on the whole more disappointing, than rubber. From first to last some $50,000,000 (£5,000,000) have been invested in rubber plantations in this country, but it would be extremely difficult to point to more than half a dozen estates which have ever returned anything in the shape of honestly-earned dividends to their proprietors. Nevertheless, it cannot be stated with accuracy that no progress in rubber-culture has been made. So far from this being the case, I believe that the industry is going ahead, if slowly none the less surely; but that Mexico will ever compete with such countries as Brazil, Ceylon, the Malay Peninsula, or even with Nicaragua, Costa Rica, Panama or Hawaii, as a rubber-producer, I venture to doubt.

Even among the planters themselves in Mexico, wide differences of opinion exist as to the proper methods of cultivation, and there is little or no community of interest between them. Taking the planters as a whole, I find them men of very little worldly experience. It is quite the exception to meet proprietors of a plantation who know anything of Ceylon or Malay rubber, and while they are, no doubt, kept well-acquainted through their trade-journals with what is transpiring in those countries, it is practical knowledge which they lack, and the want of which is reflected in the non-success of their enterprises.

There are certain plantations, on the other hand, which display in their management both intelligence and enterprise. One of these is the Rubio Plantation, situated on the banks of the Coatzacoalcos river, some 35 miles from the Port of Coatzacoalcos (now known as "Port Mexico"), and which is the property of an American Company, the Tehuantepec Rubber Culture Co., Ltd., of New York. Here are to be seen many thousands of trees, from 3 to 6 years old, while both care and intelligence have been displayed in their method of planting. Every attention is paid to weeding—a most important part of rubber culture—and the estate is the "cleanest" which I have seen in Mexico. The General Manager, Mr. A. B. Luther, has had considerable experience, and certainly nothing is lacking in completeness in regard to his handling of the Rubio plantation, one, indeed, which may be regarded as a model of its kind. Even this undertaking, however, has not as yet proved a paying proposition, although it possesses every chance and opportunity of becoming one.

The rubber-tree grows wild in many parts of the Republic, and it abounds in the warm latitudes of the States of Veracruz, Tamaulipas, Tabasco, Guerréro, Oaxaca, Chiapas, Colima, Michoacán and the Territory of Tepic. Except in a very few cases, such as that of Rubio, systematic and scientific cultivation of the tree has not been seriously undertaken. The natives evince little or no interest in rubber, and regard the product as of secondary value, although they have in a crude manner extracted a fair quantity of the liquid, which they make into small rubber balls, but without any preparation or treatment. Upon the Isthmus of Tehuantepec it is estimated there are nearly 1,200 square miles of territory admirably adapted to the growing of rubber-trees.

The tree begins to yield when 6 or 7 years old, but it is not considered advisable to tap it until it reaches the age of 9 or 10 years. If at that stage the tapping be properly carried out once a year, either in October, November, or even as late as December, the tree will last for 25 years, producing 1 lb. of gum when 10 years old, and from 2½ to 3 lbs. when 15 years of age. The milk yielded by each tree, 6 years after planting, is estimated at 6 lbs., which, reduced to rubber, loses about 55 per cent., while it is calculated that a

plantation of 100,000 trees should produce a net profit at the end of 6 years, at the present price of rubber, of about $200,000 gold (£40,000). But experience shows an entirely different result to the estimate. I may again point out that no Mexican plantation, to my knowledge at least, has ever produced this amount of profit, nor yet anything approaching it.

There are some 1,500 species of rubber plants or trees, but only a few of these are to be found in Mexico. The best is that known as *Castilloa elastica*, which is indigenous to the soil. Labour is plentiful but inexperienced, and poor in quality. The State of Chihuahua is credited with the largest production of rubber, Tabasco coming second, and Oaxaca, Puébla, San Luis Potosi and the Territory of Tepic following in the order named.

The U.S.A. take the largest amount of the crude material, France, Germany, Colombia and Holland being the next best customers in the order given. The exportation of Mexican rubber is certainly increasing, especially through the Port of Veracruz, Germany having largely augmented its purchases lately through the Port of Hamburg. The value of the rubber exported through Veracruz for the month of March last (1907) exceeded $300,000 (£30,000).

The price of rubber has gone up steadily from $1 gold (4s. 2d.) a lb. for good Pará rubber to $1.50 (6s. 3d.), the demand for many articles of commerce having increased three-fold during the last 7 or 8 years. Many years, however, must elapse, if indeed the time ever arrives, before the plantations in Mexico can bear enough rubber to affect the market.

During the past two years, considerable attention has been drawn to the guayule plant, which grows wild in Mexico, and which has suddenly been discovered to possess "valuable rubber qualities." There is considerable discussion as to who can really claim the distinction of having discovered the guayule. A Mr. Henry Lemcke, of Tacubaya, Mexico City, declares that he was the first scientist to discover the value of the shrub; but others assert equally persistently that Juan Fritz, of San Luis Potosi, a German, discovered the plant at the end of the eighties, certainly a long time before Mr. Lemcke was heard of.

There is no disguising the fact that the india-rubber trade

as a whole is much opposed to the guayule, and many experts with whom I have talked do not hesitate to denounce it as little better than rubbish, and more likely to injure than benefit the industry.

Mr. L. A. Ostien, Professor of Mathematics at the State Agricultural College at Logan, Utah, U.S.A., who occupies the position of Manager of the Plantation of the St. Paul Tropical Development Co. in Mexico, declares that guayule is of no use. This sweeping statement, however, is scarcely borne out by the fact that during the past 12 months the Anglo-Continental Rubber Co., among many other large concerns, has acquired enormous interests in Mexican guayule-lands, while those individuals who were fortunate enough to already possess properties upon which the guayule grows have sold them at figures little dreamed of years ago.

The Continental Rubber Co. of New York, which originally started with a capital of $30,000,000 (£6,000,000), has long been striving for the control of the rubber industry of Mexico, and has been developing its holding of guayule in that Republic, besides establishing factories for treating it in Torreon, another at Saltillo and a third at Acampo, all three of which are now working to their full capacity and producing nearly a million and a quarter pounds of guayule rubber monthly.

Mr. Thomas F. Ryan, who recently retired from active business with a fortune of £14,000,000, after beginning life as a clerk in a small Baltimore store, is, with the Guggenheims and the redoubtable Mr. Rockefeller, materially interested in the Continental Rubber Co., which has to-day increased its capital to $250,000,000 (£50,000,000), and has acquired rubber properties both in Mexico and in the Congo. As much as $4,000,000 (£800,000) was paid by another company last year for the Cedros ranch, upon which an immense quantity of the guayule plant grows wild. Another huge tract of 130,000 acres in the State of Coahuila changed hands recently, the idea being to exploit the guayule plant upon it. The owner of the property was a lady, Señora Ignacia Puchi de Gonzalez, of Chihuahua, and the purchasers were American capitalists from El Paso. With regard to the contemplated "Trust," however, which was to have swallowed

up the entire rubber industry of Mexico, second thoughts have apparently brought caution to the astute gentlemen who were behind the organisation, for the annual report of the United States Rubber Co. for the year ending March 31 last, and which was published towards the end of May, contains the following significant paragraph: "A suggested consolidation with the Continental Rubber Co. was deemed by our directors to be non-advisable in the present development of the so-called 'mechanical' process of obtaining crude rubber through the grinding up of shrubs producing the gum, which is done extensively by the Continental Rubber Co., but the company and the General Rubber Co. have now agreed upon the terms of an arrangement which insures complete harmony and co-operation hereafter between the United States Rubber Co. and the Continental Rubber Co., and between those concerned with both companies."

Three years ago guayule was not regarded as of the slightest commercial value, and millions of acres of it were left absolutely neglected. On the other hand, it was even regarded as a scourge, and would have been gladly disposed of for nothing by the proprietors of the land which it encumbered. To-day, the land upon which it grows has increased 500 per cent., and as much as 1,000 per cent. in value. Many of the owners who went to sleep one night comparatively poor, arose the next morning to learn that they were rich beyond the dreams of avarice.

But guayule is not the only plant which is said to contain the elements of rubber. The pinguay plant has lately come forward as a rival, it being claimed that it yields even a larger percentage of rubber than guayule. An inventor named William Threlfall Carr, of Middlesex, proposes to make artificial rubber from cereals, such as wheat, corn, etc., for use for bicycle and automobile tyres. Mr. Carr treats the cereals with phyalin, and I understand that a company has actually been formed with a capital of £250,000 to purchase Mr. Carr's patent rights. Yet a third process of extracting rubber is that from the bark of a tree, the *Mascarenhasia longifolia*, by means of the Deiss process; while early in this year a Company was formed under the title of the Anglo-Continental Rubber Co., with a capital of £300,000, to deal with a new

artificial rubber process which hopes to recover 15 tons of rubber *per diem*, and to dispose of it in England and France.

It is an undoubted fact that hitherto all attempted substitutes for rubber have turned out to be failures, for these, including the Mexican guayule, have proved unfit for the fabrication of the better-class of rubber-goods, and so far as experiments have proceeded these articles, when manufactured out of vulcanised, mechanically-made guayule rubber, soon become brittle and unserviceable.

While India—which produced the best sugar in the world until Napoleon Bonaparte introduced and fostered the manufacture of beet-sugar—the United States, the West Indies and Brazil had long been famous for the quality and quantity of the sugar grown there, Mexico has long ago earned her laurels as a producer of the cane. The Republic grows both the cane and the beet, the first-named having been introduced by the Spaniards. The enterprising Cortés, who had a keen appreciation of personal profits, possessed two plantations, one at Iscalpam and another at Cuernavaca. In fact, Mexico actually exported sugar to Spain in 1553. The whole of the hot country and most of the coast-line are adapted to sugar-cane growing, and seldom have I seen the plant grow to so enormous a size as it does on the Gulf coast. Neither ploughing nor irrigating is necessary; and once planted, the cane requires no more attention for 10 years, beyond the annual in-gathering. The average plant will produce from 30 to 35 tons of cane per acre, yielding from 20 to 25 tons of juice, and containing from 15 to 16 per cent. of crystallisable sugar.

A specimen of the cane seen by me, grown in the State of Veracruz, contained some 15 stalks, measuring an average of 5 ft. 3 in. each, and weighing a total of 131½ lbs., or, say, 8¾ lbs. per stalk. I learned that the particular field from which this remarkable product came had yielded the proprietor an average of 43 tons to the acre. Here no irrigation had been employed, and only the lightest cultivation had been undertaken. Although the tonnage that I have quoted is enormous, as any sugar-planter would admit, it is no exaggeration to say that an average of 30 tons per acre may be

relied upon in Veracruz under normal circumstances. Naturally both the quantity and quality of production in Mexico varies considerably according to the altitude of the plantation. The State of Morélos is thought to be the oldest-growing sugar district, but it is by no means the most successful. Here manual labour is more requisite owing to the necessity of irrigation and replanting every year. The best States for the cane are those of Veracruz—about the most successful of all—Tabasco, Jalisco, Puébla, Sinaloa, Guerréro, Yucatán and Michoacán. Cane grown at any higher altitude than 3,000 ft. is unprofitable. The happy medium of 1,000 ft. is undoubtedly the best to secure, all such questions as transportation, amount of rainfall, labour, etc., being equal.

Undoubtedly the quality of the cane-sugar grown in Mexico is improving, both in regard to appearance and value. Upon several of the haciendas may be found experts in the cultivation of the cane, graduates of universities, and possessing a thorough knowledge of the most modern methods of treatment and the newest machinery. Some of these men receive salaries of from $300 to $800 (£30 to £80) per month, but even at this high figure they are cheap investments, since they bring up the productiveness and the quality of the sugar to a much higher value. In one or two instances of which I know, estates upon the brink of bankruptcy were saved from disaster by an expert in management being called in at the last moment.

The average production of sugar in Mexico per annum may be modestly put at 9,000,000 arrobas, of 25 lbs. each. When the price is high, the consumption amounts to about 8,000,000 arrobas, and when the price is low the consumption goes to 10,000,000 arrobas. As the price has been low during the present year, the consumption has been correspondingly great. At the beginning of last August there were 1,336,000 arrobas of sugar on the market, which will all have been consumed by the opening of 1908. The price of sugar has advanced recently to $1.75 per arroba in Mexico City and $1.63 on the haciendas. A couple of months ago the prices were $1.62 in the city and $1.32 on the haciendas. There has been but little exportation of sugar to the European market during the

present year, but if the sugar crop of 1907 is a large one, as is predicted, it is likely that there will be a considerable amount exported to England next year. The price for Mexican sugar in the British market at present is eleven shillings, against only eight shillings a few months ago. Statistics issued by the Mexican Treasury department show that in the fiscal year 1905-1906 the sugar exported from Mexico represented a value of $674,235 as declared in the custom-houses. In the fiscal year 1904-1905 the value of the sugar exported was $5,717,445, a large proportion being raw sugar. There is every indication just now that the demand from England for Mexican sugar will be renewed during the latter half of the current fiscal year, and advance orders have already been received by leading sugar exporters, who expect to equal the exports of 1904-1905.

As an evidence from the above figures of the serious position of Mexican sugar-planters I may point out that in 1905 Mexican sugar brought fifteen shillings per cwt. on the British market, early in the season, but by June of that year it had fallen to twelve shillings, and by the end of the year it had reached eight shillings per cwt. In 1906 as in 1905 the total amount of sugar raised and sold amounted to 11,000,000 arrobas, and I expect the same amount will have been produced in 1907. Much of this comes to England, although a considerable amount is taken by the United States. The proportion is about 19,000 tons to the former, and 9,000 tons to the latter, or in all 28,000 tons.

At the time I left Mexico the ruling price of sugar was extremely low, so low indeed that the Mexicans were picking up all that they could, and there remained none whatever for export. The home consumption has been advancing considerably of late years, but the planters have derived little or no benefit on account of the fall in prices. As we know from experience, the expansion in a business does not always spell nett profits, and we have only to observe the effect upon the business of our own country of late, which from the trade returns would indicate a great expansion, but of which the profits are almost invariably found to be in a diminishing ratio. The Free Trade school preaches the doctrine to our manufacturers that they must be prepared for such results as these,

which, after all, can only be expected under the law of diminishing returns.

A Syndicate of sugar men was formed in Mexico City in 1905 to control the sugar market of the Republic, but it came to an untimely end by going into liquidation, the members being burdened with about half a million arrobas of sugar on their hands, which they found it impossible to dispose of before the new season's crop came forward. A second Syndicate, this time formed of haciendados, and which was started a short while after the first, and which actually competed with it, fared no better. Trusts and "corners" in Mexico have been very difficult to maintain, and find but little favour with Governmental officials.

Of the many sugar estates which I visited, only a few could boast of modern machinery and plant. Upon the majority the old methods of treatment were still preserved, but that even under these conditions the proprietors continue to make them pay is proved by the fact that no fewer than four owners informed me that their estates and everything to be found upon them "stood them in nothing," since they had actually cleared, in the brief space of four or five years, the whole of the original outlay upon them. In spite of this, only one out of the four was intelligent enough to install new machinery. The others were perfectly contented to go on as they were. The methods usually followed include the crushing of the cane by heavy wooden rollers, fed to them by hand, the juice being boiled down in huge vats to the necessary consistency to form small tablets, or cakes (called locally *panelas* or *piloncillas*), the substance, of a dark brown, unappetising appearance, being known as *panocha*. Upon some few estates, however, the most up-to-date and complete installations had been introduced, with corresponding advantages. The Mexican Tropical Planters' Co., for instance, have entirely rebuilt their mill on the Columbia plantation, in the State of Veracruz, their new machinery including filters and bagasse carriers. At Omealca, also in the State of Veracruz, an immense mill has been erected with a capacity of 250 tons daily, equalling a production of 10 tons of sugar every 24 hours. The Sinaloa Sugar Co., and the Aguila Refinery Co., both belonging to the same owners, have a

well-designed and capacious plant, the production of each amounting to a yearly return of 2,000 tons. The Oaxequeña plantation, near Santa Lucretia, Oaxaca, has a mill capacity of 1,000 tons daily, with an elevator of 25,000 tons capacity, the finest of its kind in the Republic of Mexico.

Indications are not lacking to prove that sooner or later beet-sugar will prove a highly-important factor in the Mexican sugar industry. From various conversations which I had with planters and agricultural authorities, I formed the conclusion that beet-sugar cultivation for food will supersede that of the cane. There are a great many important points in its favour. Firstly, it will grow in most parts of the Republic—in fact everywhere—but it is only in a portion of the districts that it would be fit for human food purposes; secondly, it can be grown for ten out of the twelve months of the year; thirdly, in rotation with beet can be raised corn and maguey, and they can all three be planted conjointly. Beets can be raised from $2 to $3 (4s. to 6s.) per ton, or from $30 to $60 (£3 to £6) per acre. With a tendency to convert all the sugar-cane grown into alcohol, the beet is bound to become more and more in demand. At present practically all beet grown is turned into food for cattle, for which purpose nothing can be finer. Cheap native labour is another important factor, but, as in all kinds of enterprises, there are *cons* as well as *pros* to be considered. Fuel and water questions, for example, have to be faced, and these are important. The cost of erecting a beet-sugar factory again is high, although, perhaps, not higher than for a cane-mill. The market, however, is practically unlimited, and such an enterprise ought to prove successful in the long-run.

CHAPTER LXV

Cotton manufacture—Native production—Foreign imports—Quality of fibre—Protection against boll-weevil—The Purcell Company's plantations—The Orizaba mills—Remarkable prosperity—Employees and recent strikes—The factories described—Varieties of goods produced Woollen mills—Zarapes and prices—Silk manufacture—An ancient industry.

As long as Mexico itself has been known, cotton has been cultivated there, and abundant evidence exists to show that, even before the Aztecs came into the Valley of Mexico, the art of cotton-spinning was known and generally practised. The great cotton belt of the country is in the Laguna district in the State of Coahuila, a tract of land which has a length of about 40 miles, but somewhat narrow. The principal cotton-producing districts other than this include the Cantons of Cosamaloapam, Tuxtla, Tuxpan, Tantoyuca and Veracruz, all on the Gulf side; and from Sonora to Chiapas on the Pacific Slope. Last year was not a good one for cotton in Mexico, the crop being 20 per cent. lower than it should have been; but the present year the crop has been a phenomenal one.

For the first time on record in Mexican history, cotton was exported in considerable quantities this year. The fact is due to the crop in the Laguna district having been unusually large, and more than the immediate requirements demanded. Before this date Mexican cotton had not been exported to European markets, chiefly owing to the fact that the production in the past had not been beyond the needs of home consumption; but, as I have said, the Laguna district having produced some 50,000 bales in excess of the needs of the home-market, several thousands were shipped during the months of April, May and June to Liverpool, Havre, Bremen and Hamburg through the Ports of Tampico and Veracruz. Much of the

Receiving Cotton on the Hacienda Santa Elena, Coahuila.

See p. 255.]

Piling up Cotton at an Improvised Receiving Station.

See p. 255.]

Mexican cotton exported was billed to Messrs. Weber and Shear, of Hamburg, who took over 2,000 bales of cotton within the period of three months. It has been discovered, moreover, that Mexican cotton fetches a higher price than the American product of the same classification, bringing about 20 cents more per 100 lbs.

The day must be long arriving before Mexico will be able to dispense with cotton importation. It seems remarkable that with a soil so thoroughly well adapted and a climate so congenial, sufficient fibre should not be grown to dispense permanently with foreign importations; but, although Mexico has an acreage sufficient to produce cotton in quantities greater than the U.S.A., she is a consistent importer to the annual value of something like $2,000,000 (gold) (£400,000), necessary to supply the normal demand of her own factories.

The bulk of the cotton brought into Mexico comes from Texas, and the production in the Republic is not usually large enough to supply domestic demands. This year proved an exception. Last year the local production was a little over 105,000 bales, and the importations from the U.S.A., the smallest for many years, amounted to 13,226 bales, as compared with 67,894 bales for the previous year, and 54,971 bales in 1904. In spite of the fact that the crop proved a good one for 1906-1907, and that some exports have actually taken place, the importation will probably not have been less than 40 per cent. on balance of the amount needed.

It is practically certain that the production of cotton in Mexico will be largely increased within the next few years, but then so will be the demand in proportion for local needs. British mill-owners are becoming interested in Mexico as a possible source of cotton, and a number of companies have been organised with British capital to acquire land in Mexico and establish cotton plantations. In some quarters these efforts have proved successful, notably in connection with the Mexican Cotton Estates of Tlahualilo, which made a profit of £48,907 in 1906, and have very good prospects for the current twelve months. There are about 125 cotton factories in the Republic of Mexico, and some of the organisations interested have very large capitals. Among these are the Compañia de Orizaba, with a capital of $8,500,000 (£850,000); the Com-

pañia Industrial Veracruzana, with a capital of $3,500,000 (£350,000); the Compañia Industrial de Atlixco, with a capital of $3,000,000 (£300,000); the Industrial San Antonio; the Compañia Industrial Manufacturera; the Gonzalez factories at Salvatierra and Chamacuero in Guanajuato, and the Industrial de Guadalajara.

From all districts in Mexico the average production of cotton is less than 120,000 bales. Outside of the Laguna district cotton is cultivated in isolated patches, and scarcely affects the market. All that can be raised on the haciendas in the southern part of the Republic finds a ready market at the nearest cotton mill, which, for the rest of its supply, must look to the Laguna cotton and after that to the imported material. The average haciendado of the South usually pays but scant attention to the growing of cotton, whereas if he did he might make it a profitable feature.

Some 5 years ago over-production caused considerable loss in Mexico, and that the lesson was taken to heart was proved by the formation of the Industrial Company of the North, an organisation of 8 mills which formed a "pool." Prices were thus regulated, and the question of production was governed by the direction of a central board, the idea being to prevent a recurrence of over-production such as the mills had previously suffered from. Under the impression that the demand for cotton cloth made in Mexico had grown to greater proportions than was really the case, several new mills were established, and it was not long before the market was overstocked, with the natural result that something like 15 of the new mills had to be shut down.

So far as the quality of the Mexican cotton seed is concerned, I may say that every pound of seed that goes into the Laguna district is carefully inspected, and when there are any traces of boll-weevil found the whole consignment of seed is at once burned. While I was in this district last year two car-loads of seed were thus destroyed at the order of the Government Inspector. The result of this great care is that boll-weevil does not trouble the planters of that district to any very great extent.

The fibre of Mexican cotton is longer and stronger than that of the cotton of the U.S.A., but it is thinner, less silky, and not

as clean as the latter, which fact has given rise to the custom of mixing the American cotton with the Mexican, especially when manufacturing articles of fine texture. Besides the cotton-cloth and prints which are turned out, a considerable quantity of cotton-yarn is used in the manufacture of the *rebozos*, a head-shawl worn by nearly every woman in Mexico; blankets and coarse napkins. The best *rebozos* come from the town of Tenancingo, and sometimes they are made of silk and linen. In the City of Mexico there are several factories devoted to the manufacture by hand of *rebozos*, *mantas* and *zarapes*.

Perhaps the most successful and best-known estates in Coahuila embrace some of those which are held by Messrs. William Purcell and Co. These include San José de los Alamos, San Lorenzo, Santa Elena y Anexas and El Venado. All these properties are abundantly irrigated by means of the River Nazas, through canals, the water being taken for a considerable distance from the river, which is dammed in several places. Some of these canals, which are admirably and substantially constructed, exceed 25 kilometres (say 14½ miles) before entering the boundaries of the properties. Upon these extensive haciendas are grown enormous quantities of the best quality of cotton; and so profitable has proved the industry that whereas both wheat, corn and cotton were formerly raised here, the owners have abandoned both of the cereals in favour of cotton, the whole of the ground now being thrown into the staple. It is an acknowledged fact that the firm of William Purcell and Co. raise the finest cotton grown in the State of Coahuila, and they succeed in securing year after year the highest prices for the fibre. To their credit be it said they have taken the prizes offered at Paris, Buffalo, St. Louis and San Antonio Exhibitions, having been awarded the Silver Medals in all cases.

The average prices ruling for Mexican cotton is from 20 to 28 centavos per (Mexican) lb.; and the annual product of the Purcell haciendas may be put at between 5,000 and 10,000 bales, each bale weighing about 550 lbs. From August to December (the busy picking-time) these haciendas employ from 2,500 to 3,000 men, the average number throughout the year being 1,000. The daily wages earned during picking-

time is $2 (4s.), and during ordinary times $1.25 (2s. 6d.) a day. At the present time some 15,000 acres are under cotton cultivation, the two principal haciendas, San José de los Alamos and San Lorenzo, being joined by tram-lines running a distance of 24 kilometres (15 miles).

The Compañia Industrial de Orizaba, the largest cotton-mill in Mexico, is about 10 years old, having been formed in 1897 by the amalgamation of all the large cotton factories of the Orizaba district—viz., the Cerritos, the Cocolapam, the Rio Blanco and the San Lorenzo. The name under which it is now known is the latter. The late Mr. Thomas Braniff (the founder of the San Lorenzo factory) was the first President of the Company, having behind him all the powerful French element of the Republic, and during the last decade the capacity and the size of the factory have been tripled. It owns a hydro-electric power-plant, possesses 7,000 looms, has a monthly output of considerably more than $1,000,000 (£100,000) value, and its annual profits exceed $2,000,000 (£200,000).

The Company has invariably followed a policy instituted by the founder, and applied by him to all the industrial enterprises with which he was connected, namely the reservation of a large portion of the profits for future developments, instead of dividing them up to the hilt in dividends. This fact explains the enormous amount of the reserve and other funds, amounting to $8,000,000 (£800,000), which, considering that the original capital still stands at $8,500,000 (£850,000), seems perhaps more than is necessary. Assuredly the most cautious management will not seek to put aside any amount beyond that which represents the whole of the capital? In the event of future additions, which I understand are contemplated, the substantial reserves could be drawn upon, and this is no doubt in the minds of the directors, rather than add to the capitalisation. Should the Company continue to prosper as it is doing now, in about five years' time it will have again doubled its capacity.

These combined cotton factories employ almost 10,000 workpeople, a fairly considerable number, and the equal of which cannot be found anywhere in Mexico. The Rio Blanco factory is the largest of the group, and forms a small town in

itself. It is managed by an Englishman, with a sound Lancashire experience, and most of the machinery is of British make. The shareholders are mostly large, composed of dry-goods dealers, and thus materially help along the prosperity of the concern. The shares, nominally of $100.00 each, stand to-day at $270, and are unprocurable at that.

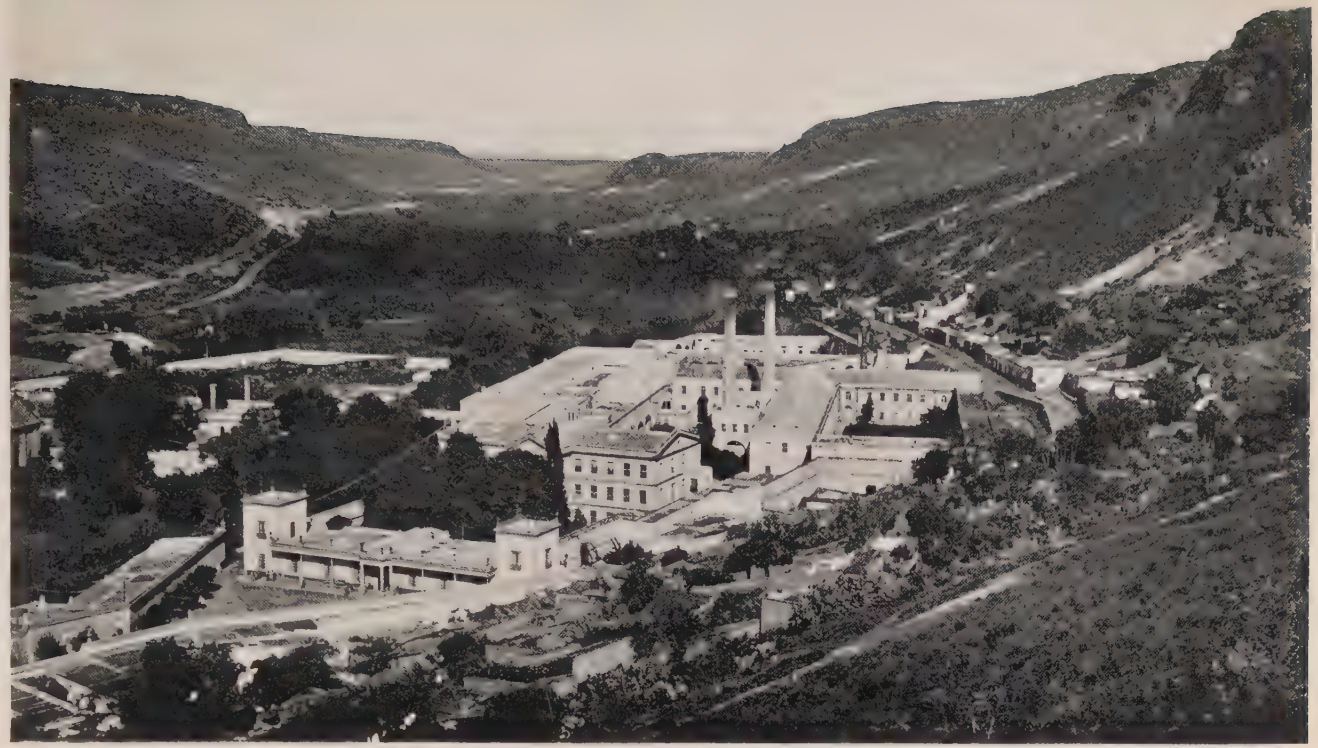
In the month of January of this year a serious disturbance took place at the cotton-mills at Orizaba, belonging to the Cia Industrial and others, which were wholly and solely the outcome of political agitation, mainly the work of a number of professionals named Juan Gomez, Felipé Martinez, Santiago Silva, J. Carmen Martinez and Carlos Gomez. In spite of the fact that the rioters agreed to submit their grievances to the President of the Republic, and notwithstanding the fact his excellency duly gave his decision—which was on the whole against the applicants—they allowed themselves to be led into a riot, with the result that warehouses were pillaged, a central store containing the output of 53 different mills was burned down, and the contents entirely destroyed, and several other buildings were attacked and damaged. The Jefé Politico of Orizaba, Señor Carlos Herrera, dealt very diplomatically with the disturbance, and but for his efforts the results would have been even more disastrous than they were. Over one hundred and sixty of the most dangerous among the rioters (formerly workmen at the factories) were arrested and imprisoned. Several men lost their lives, and still many others their employment, while in the end the strikers gained absolutely nothing by their outbreak. So sternly was the trouble suppressed, and so emphatic was the lesson brought home to them, that it is very doubtful whether the mill-workers of Orizaba, at least, will become the dupes of political agitators upon any future occasion. The leaders also learned the strength and earnestness of the Mexican military authorities.

Discontent has by no means been eliminated, however, by the temporary peace that prevails, as was proved by 1,500 of the operatives striking again on May 27th last, at the Rio Blanco mills; but they returned to their looms on the following day. Probably months will transpire before a complete return to the *statu ante* can take place. The mill operatives

declare that the masters have not increased the wages as promised; but some at least have done so, namely those of the factories Rio Blanco, Cocolapam and San Lorenzo, all belonging to the Compañia Industrial de Orizaba.

A fruitful cause of grievance among the men has been the hateful "tienda de raya," or, as we should call it, the "truck system." It is certainly a bad institution in whatever country it prevails, and the sympathy with the men in their protest against its continuance will be general. The mills which cling to the system maintain that the men "are not compelled to buy at their stores"; but there is such a thing as "moral persuasion," which can be made very arduous and trying to the operative who has his own idea of the matter and ventures to oppose it to that of the management. On many of the large haciendas in Mexico the truck system prevails, and seems to be accepted by the peons with equanimity. At least, I found them reconciled to it; I heard absolutely no complaints upon any of the haciendas which I visited, and where, for the most part, the people seemed happy enough and undesirous of any change. Such shops as there were to be found near the estate were situated—probably intentionally—a long way from the hacienda dwellings—and naturally the peons preferred to buy what they wanted on the spot instead of having to tramp a long way for it.

Of the seventy thousand people who form the population of Orizaba, some ten thousand are continually employed at the cotton-spinning and printing factory (La Compañia Industrial de Orizaba, S.A.), and out of these some 10,000 only some 220 are women. The Company owns 4 different mills, the largest and most important being the Rio Blanco factory, and the other three, smaller ones producing the plain material only, being Cerritos, San Lorenzo and Cocolapam. The Rio Blanco mills cover an immense area of ground, the buildings being practically all new and containing the very latest types of cotton-spinning and printing machinery. While there are no Americans or other foreigners employed in managerial positions (except the General Manager, an Englishman), so there is no American machinery to be found in the factory itself, but merely in the workshops where American-made planing machinery, considered superior to ours, may be found



QUERÉTARO.—The Hercules Textile Mills, one of the largest in the Republic.

side by side with that of British make. All the printing and finishing machinery is the product of Messrs. Mather and Platt, Ltd., of Manchester; the spinning machinery looms and most of the weaving machinery are the manufacture of Messrs. Platt Brothers, of Oldham, Manchester, and Messrs. Hockling and Co., of Bury, near Manchester, supplied the looms, of which there are some 4,000. Other Manchester firms have contributed to the completion of this fine factory, Messrs. Howard and Bullough, Ltd., of Accrington, furnishing the winding and sizing machinery and Messrs. Galloways, Ltd., the boilers, pumps, etc., while the turbines and turbine-engines are the work of Messrs. Güntler and Co., of Oldham. There are 6 hydraulic presses made by John Shaw, of Manchester.

Comparing the Rio Blanco factory with others which I have seen in India and in England, I should say that it is more remarkable than any to be found here, inasmuch as it turns out a greater range of goods and more varieties of patterns than others. In calicos, sheetings, coloured-shirtings, cretonnes, flannels, crapes, towellings, muslins, fancy cloths, suitings, serges, shawls, linings, kandkerchiefs, linen and cotton laces there are several hundreds of patterns, and as many colours and combinations of colours.

About one half of the raw material is imported, 40 per cent. of the cotton coming from the United States (Texas and Louisiana) and 10 per cent. from Egypt, the latter arriving through Liverpool. The whole of the factory's production is consumed in the Republic of Mexico, and the Government greatly assists the Company's interests by the imposition of substantial duties upon foreign-made goods of this description.

For instance, cotton lace pays $6.00 (say 12s.) per kilo, and linen lace $7.00 (14s.); sheetings pay 15 c. (about 3½d.) per square metre; prints 11 c. (say 2½d.) per square metre, and towellings $1.80 (nearly 3s. 7d.) per kilo. Shirtings, if square or striped, pay 17 c., and if of uneven patterns 20 c. per square metre. These duties are found sufficiently heavy to thoroughly protect the local industry, and that the Company referred to finds the trade profitable may be believed when it is enabled to maintain a minimum dividend of 12 per cent., and has on one occasion paid 25 per cent. This year no doubt a

similarly large distribution could have been made, but for the fact that the very large amount of additional building going on is being paid for out of revenue, and is to cost some $400,000 (£40,000). These profits are large, but there are some home industries of a similar nature located in and around Manchester which pay a steady 10 or 12 per cent., and this when competition has to be met. In regard to the cotton factories at Orizaba, there is practically no competition. The present price of the Compañia Industrial de Orizaba shares ($270) yields a return of a little under 5 per cent. on the investment.

One remarkable feature of this factory is the manner in which the highly inflammable raw material is stored. The cotton is packed in bales of 50 or 100 lbs. each, and placed in separate brick-built "fireproof" compartments without any communication with one another. All these compartments being separated, should a fire occur in one, it would be almost impossible for it to make any serious headway. So confident are the Company that no widespread damage can arise from a conflagration upon their premises that they do not carry a penny-worth of insurance. Nevertheless, every possible provision for combating a fire is made, and a perfect supply of water-hydrants is provided throughout the entire range of buildings.

The Company have no fewer than 1,200 houses for the use of their workpeople and staff, and so far as the latter are concerned, they are well looked after and are fortunate in living in a very pleasant climate, in spite of a rather heavy rainfall during the summer months—June to October. The height of the town, 4,200 ft. above sea-level, affords a moderately cool atmosphere all the year round, although Orizaba is considered subtropical, being on the edge of *tierra caliente*, or hot country. In spite of the generous manner in which the employees are treated, as will be observed above, they have not been free from the influence of the "walking delegate," that intolerable nuisance who stirs up strife and trouble between employers and employees, and whose pernicious efforts are unfortunately becoming almost as fruitful of trouble in Mexico as has long been the case in the Argentine. The Mexican Government, however, is less supine than that of Argentina, and the ringleaders and agitators, as

was the case last January in Orizaba, are promptly called to account and as severely punished. With legitimate grievances the authorities are not slow to sympathise, but with the paid agitator, who has everything to gain and nothing to lose, they know how to deal.

Although of somewhat smaller dimensions, the cotton factory in the City of Toluca (the capital of the State of Mexico), known as the Industria Nacional (Proprietors, Messrs. Lopez and Manéro), is of considerable importance. The whole of the machinery is either British or Spanish (the proportion being seven-eighths of the former and one-eighth of the latter). The spinning machinery is that of Brooks and Doxey, of Manchester, patterns 1889 and 1904, and of Samuel Brooks, Manchester. The measuring and feeding-machines are made by John Sumner and Co., Manchester, as well as the hydraulic pressing machines. The looms, of which there are some 210, are placed very close to one another, and it is questionable whether any factory inspector, either in Great Britain or the United States, would consent to grant a "clean bill of health" to an establishment which crowds so many machines into so limited an amount of space, leaving hardly sufficient room for the slimmest of individuals to pass.

There are no women employed at this factory, the majority of operatives being young boys, ranging from 8 to 15 years of age. Their daily wages are about 75 cents (namely, 1s. 6d.), and their hours extremely long—from 5.30 a.m. until 9 p.m. On Saturdays, the usual pay-day, the hours are from 5.30 a.m. to 4 p.m., but owing to the delay incurred in paying off all the hands, many of them fail to find release until late in the evening. There are several machinists employed whose hours are somewhat lighter, and their pay $3.00 (say 6s.) *per diem*.

The cloth turned out is mostly white-sheeting, of various grades, and some coloured woven cloths, but no printing is done. The weekly output of the factory is about 1,800 pieces, each piece measuring 27 metres in length, and selling wholesale at from $3.25 to $4.25 (say 6s. 6d. to 8s. 6d.) the piece. The entire output is sold to customers in the Republic.

Besides cotton, Mexico manufactures a large number of knit goods such as hosiery, underwear, etc., while the woollen

industry is of considerable importance. Hundreds of thousands of woollen cloaks, or blankets (*zarapes*) are turned out annually, most of them being of a bright vermilion colour, while others combine all the hues of the rainbow. The *zarapes* of brilliant hues are bought in large quantities by visitors to Mexico, who are attracted by their remarkable colouring and comparative cheapness. The cheapest, and commonest, kind of *zarape*, such as every peon carries about with him, costs from $2 (4s.) to $5 (10s.); but as much as $50.00 (£5) is asked for the more elaborate articles, and generally speaking, they are well worth the price. The principal woollen mills are situated in Aguascalientes, Durango, Guanajuato, Hidalgo and Puébla.

Wool-spinning has been a Mexican industry for more than three centuries, and in the year 1541 the first Spanish Viceroy introduced merino into the country, and established there the first manufactory of woollen cloth.

Silk-weaving is also an ancient industry, but it is not very generally pursued. As far back as the time of Charles V. of Spain, silk was cultivated and sold in the markets of Mexico, Cortés speaking of the fact in his letters to his Sovereign; while in some of the museums pictures may still be seen woven entirely in silks by the ancient Mexicans. Considering the adaptability of the climate, it is surprising that silk-culture is not more largely indulged in, for silkworms thrive apace in Mexico, which is unexcelled by any country in the world for the raising and developing of cocoons. There are about a dozen silk factories scattered about the Republic, and there is one in the City of Mexico which turns out a very fair grade of goods.

Last May an influential Syndicate, composed of French capitalists, contributed among them a sum of $10,000,000 (£1,000,000), for the establishment of a silk factory in the State of Chihuahua, the manufacture being artificial and not natural silk. A similar undertaking was tried in England some years ago, in connection with a most ingenious artificial silk spinning-machine, but it failed dismally.

CHAPTER LXVI

Tobacco cultivation—Districts and soil—Product for 1907—Various qualities—Flavour—Mexican *versus* Cuban tobaccos—Manufacture of cigarettes—El Buen Tono Company—Model Factory—Latest machinery—Wages of employees—Various brands—A profitable enterprise.

In spite of the fact that tobacco is manufactured all over the Republic of Mexico, factories being met with in practically every town and hamlet, Mexico is not considered a good country for tobacco from a manufacturer's point of view, owing to the fact that the majority of smokers prefer a cheap tobacco, which yields a smaller profit to the manufacturers. On the other hand, Mexican tobacco has been pronounced by the highest authorities as the best produced in any country, the Mexican cigar and cigarette being favourites with connoisseurs. The plant being indigenous to the country, the Spaniards were not slow to avail themselves of the existence of the favourite weed. Owing to the interference of the Crown of Spain, cultivation was restricted to a great extent, for in 1764 it was ordained that the culture should only take place in the States of Orizaba, Cordóba, Huatusco and Zongolica, severe penalties being imposed for its cultivation elsewhere. This state of affairs continued for many years, but in 1868 several foreign cultivators and manufacturers, principally from Cuba, came over to Mexico, where they began to cultivate the plant upon an extensive scale.

The tobacco plant is now raised all over the Republic, the bright green foliage being met with in every direction; but the principal districts are those of Victoria, in the State of Tamaulipas, Campeche, in the State of the same name, the Territory of Tepic, and on the Pacific slope of the States of Chiapas, Oaxaca, Guerréro, Michoacán, Jalisco, Colima and

Sonora, as well as the interior districts of Morélos, Michoacán, Oaxaca, Veracruz, Tamaulipas, Tabasco, Guerréro, Jalisco and Colima.

Mexico provides the very best soil adapted to the growing of tobacco, that is to say sandy, with organic vegetable matter in decomposition, and containing oxides of iron, aluminium and a little lime. Such a soil produces an aromatic and mild flavour in the tobacco which is much esteemed, and accounts for the great favouritism with which Mexican tobacco meets. It is unexcelled as a material for "fills," practically no wrapper-tobacco being grown in the country. Strangely enough, the finest Mexican cigars go to Havana and pass as "Cuban"; while all the Central American and some of the South American States buy these cigars, thinking that they are from the Island of Cuba, as indeed they are, but not grown there. These purchasers pay as much as $1.67 gold per lb.

The manufacture of cigarettes and cigars is practically the same in all cases, but in some factories, such as those in the City of Mexico, the very latest kind of machinery is employed. During the year 1905-6 something like 20,600,000 lbs. of the manufactured article were turned out, and for the present year it is estimated that there will be produced 1,000,000 *arrobas*, that is to say, 25,000,000 lbs. of tobacco, and the distribution of collection may be put as follows:

	Arrobas.
San Andrés Tuxtla	100,000
Acayucna and Tlaxpam	30,000
Cordóba	300,000
Tlapacayam	150,000
Tepic	150,000
Ojitlan and Valle Nacional	100,000
Playa Vicente	100,000

Other districts in Oaxaca and Chiapas 50,000, and districts in the State of San Luis Potosi about 20,000 *arrobas*.

Perhaps the finest quality of tobacco leaf comes from the first-named district, San Andrés Tuxtla, which is in the State of Veracruz. The Germans, Norwegians, Danes and Swedes are year by year becoming heavier purchasers of Mexican tobacco, which is at the same time improving in quality, due perhaps not so much to improved cultivation as to the better handling of the product. The tobacco lands of the territory

of Tepic are naturally excellent, and with more capital and labour these could be brought to a high state of perfection and profit. The partial failure of the crop in Cuba a year ago proved of immense advantage to Mexico; but apart from such exceptional instances as this, the trade of the Republic has long been on a very firm and profitable basis.

It is principally with the tobacco coming from the district of Pinar del Rio, Cuba, that Mexican tobacco has to compete. Several large fortunes have been made in Mexico by watching events on the neighbouring Island of Cuba, and when the crop fails there, the Mexican producers hold up their shipments to Europe. In 1906 one of the oldest and best known tobacco buyers in Mexico, who had consistently shipped great quantities to Germany, decided not to export, and this policy was followed by a large number of other exporters who held back their crops for better prices.

Mexican tobacco has a flavour peculiarly its own, which grows upon the smoker when it has been used for any length of time, and in some parts of the U.S.A. Mexican tobacco is rapidly superseding the Cuban article. It is interesting to note that the U.S.A. consumes more tobacco than any other country in the world, and a great portion of this comes from Mexico. The consumption of tobacco in the U.S.A. per head is 5.40 lbs. per annum, which is only exceeded by one country, namely that of Belgium, which is 6.21 lbs. Germany comes next with 3.44, then Austria with 3.2, Canada with 2.74, Australia with 2.59, France with 2.16, and the United Kingdom with 1.95. The world's total consumption of tobacco must amount to something gigantic, and for twelve countries alone this amounts to 1,209,678,000 lbs., giving an average consumption of 2.79 per head.

The rapidity with which an article of general consumption can mount in public favour when once launched upon the market is proved by the astonishing success of the great Mexican tobacco factory known as El Buen Tono, a limited company with a capital of $6,500,000 (say £650,000). Like many—I may say most—commercial undertakings, this business has grown by degrees, and while the last 10 or 12 years, for which I have been enabled to secure the figures, do not represent a consistent increase upon the annual output,

varying as this does somewhat between the years 1899-1900 and 1900-1901, the increase of 500 per cent. in the output of to-day, compared with that of the year 1894, shows how successful the undertaking has been on the whole.

The following table of actual sales to the date December 31st, 1906, and the increases made in the Company's capital, practically tell their own tale:

Year.	Sales.	Capital.
	$	$
1894	1,059,336	
1895	1,374,426	
1896	1,445,241	1,000,000
1897	1,472,651	
1898	1,650,829	
1899	1,714,029	
1900	1,661,274	2,500,000
1901	1,526,975	
1902	1,851,167	4,000,000
1903	2,769,942	
1904	3,780,762	5,000,000
1905	4,408,249	
1906	5,425,918	6,500,000

The actual sales of El Buen Tono Company for the last few months of 1906 were as follows:—September $466,514.51; October $473,266.32; November $481,890.43; and December $501,933.29, making a total for the year of $5,425,918.59, or an increase on the year of 1905 of no less than $1,017,668.89.

The factory, which was entirely rebuilt some few years ago, belongs to the category of palatial edifices, and in no country have I seen, nor do I believe exists, a more handsome, a more convenient, or a more complete factory than that of El Buen Tono Company. The whole of the buildings are upon one floor, and occupy an entire block in the business part of the City of Mexico. The various departments are lofty, light and exceptionally clean, the floors being either of polished hard-wood or of cement, and even the stables being thus paved. The 240 cigarette-making machines, all of French design (the manufacture of M. Decouflé, 7 Rue de Deparcieux, Paris) are placed in one department, being operated entirely by

women, all of whom are Mexicans. There are between 500 and 550 of these continually employed, either as machinists, packers, folders or sweepers.

All the tobacco-cutting machines, the drying machines, the packing case making, the lithographing, etc., are carried on by men, mostly experts in their various callings, of whom some 500 are employed under the control of Frenchmen, with Mexicans as overseers.

The working hours for all alike are from 7 a.m. to 7.30 p.m., with an interval of one hour (from 12 to 1 p.m.) for dinner. Upon occasions the hands work overtime, and are paid extra wages upon a sliding scale of rates. The maximum that any one worker earns *per diem* is $2.00 (say 4s.), and the average $1.50 (say 3s.), the many young boys who are engaged upon making the paper-boxes and carrying them from one department to another being paid 25 centavos (or 6d.) a day. The women are all thoroughly clean and happy-looking, entirely different, both in appearance and manner, to the dreadful-looking drabs—untidy, uncleanly and half-starved—that one encounters in English or American factories, and who excite one's pity by their hopelessly sad destiny.

The machines used for the making of the cigarettes, as I have said, are of French design and construction, are mainly of the latest pattern and of the most ingenious character. Unfortunately, I have not the space to describe their mechanical details, neither is it perhaps necessary to do so in a general work of this character. Every year almost some further improvement in cigarette machinery is introduced, but one would say that finality has been reached in connection with the Decauflé type of 1906. This machine turns out 80,000 completely-finished cigarettes, rolled, cut, printed and ready for packing, daily. The former type of machine was capable of turning out but one-half of this number, and the printing of the name of the firm on the paper was faint and indistinct. The latest pattern of machine costs El Buen Tono Company $3,000 (£300) each, as against $2,300 (£230), but the increased speed of the working, the smaller floor-space occupied, and the greater solidity of the whole machine, more than represent the difference in the price. The total output from the 240 machines at work is about 11,000,000 cigarettes

daily, but in a few months' time this enormous number will be still further augmented.

The various brands of cigarettes made by El Buen Tono Company are intimately known to all Mexicans, and to a great number of Americans living in Mexico, who are great votaries of Mexican tobacco. Within recent months an English Agency has been opened in London, and I venture to predict that ere long Mexican cigarettes will greatly displace the French rubbish and a good deal of the cheaper trash known as "British" cigarettes, which our younger generation so lavishly patronise. In spite of the duty upon imported tobaccos, Mexican cigars and cigarettes can be imported and sold in England more cheaply than much of the foreign grown tobacco, taking quality for quality.

The "Jockey Club" brand, folded by special machinery and without the use of any paste, nicely wrapped in silver foil; La Parisienne, an extra dry tobacco with cork-tips; Turkish, also with cork-tips, and especially made for British and American smokers; a specially fine brand known as "Eclipses," and a luxurious class of Egyptian tobacco described as "Deliciosos Turcos," are all smoked to an enormous extent in the Republic of Mexico, and are among the several brands about to be introduced to British consumers.

The whole of the immense business of El Buen Tono Company is controlled by a Board of Directors in Mexico City, composed of some of the most influential and wealthy business men, the Managing Director, M. E. Pugibet, mainly looking after the Company's immense interests in Paris, and M. Andrés Eizaguirre, the Assistant General Manager and Secretary, is in charge at Mexico City. Both of these gentlemen are French, and are among the world's recognised authorities upon everything relating to the cultivation and manufacture of tobacco. The majority of the shareholders of this remarkably successful concern, which has repaid its original capital more than two and a half times and returns on the present enlarged capital over 12½ per cent. per annum, reside in Paris and Geneva. The present price of the $100.00 shares stands at $650.00, or, say, 550 per cent. premium.

CHAPTER LXVII

Oil-fields—Prospecting—Results to date—Principal oil-districts—Indians' knowledge of oil—Mr. Wiley as authority—Oil-currents of Mexico—Various enterprises at work—Ebano oil-fields—Mexican Petroleum Co.—Central Railway's use of oil and contracts—The Pearson interests on the Isthmus of Tehuantepec—Minatitlan refinery—Furbero oil-fields—W. R. Hearst's investigations. Discovery of coal—Coahuila and Durango fields—Anthracite coal in Sonora—Coal in Puébla—Unsuccessful enterprises.

For about twenty years prospecting and boring for oil have been proceeding in Mexico, more or less in a desultory manner, shallow wells being sunk or bored at various places along the Tehuantepec route, but especially in Tabasco. About 15 years ago a well was bored, and a small refinery erected, at Ozoluama, in the State of Veracruz, but the oil proved of poor quality, and the refinery soon closed down. So far no other refinery has been built for treating exclusively native oils. Near Papantla, also in the same State, where seepages of a lighter petroleum exist than are found further north, prospecting has been proceeding for several years, but without petroleum having been struck in any quantity. Some 8 or 10 wells collectively produced but 3 or 4 barrels a day at the best. Surface indications are frequently found of a most encouraging nature, only to lead to disappointment upon boring. On the Pacific Coast of the State of Oaxaca south of Jupuila, seepages of a fine quality of petroleum containing paraffin exist. At Zapotietic and Santa Ana, in the State of Jalisco, indications of petroleum have been found, while in the State of Nuevo León, south-east of Monterey, large seepages of a heavy kind of oil have formed small lakes from time to time, and pools of asphalt have occurred. The Indians had some knowledge of the use of the oil, for they mixed it with

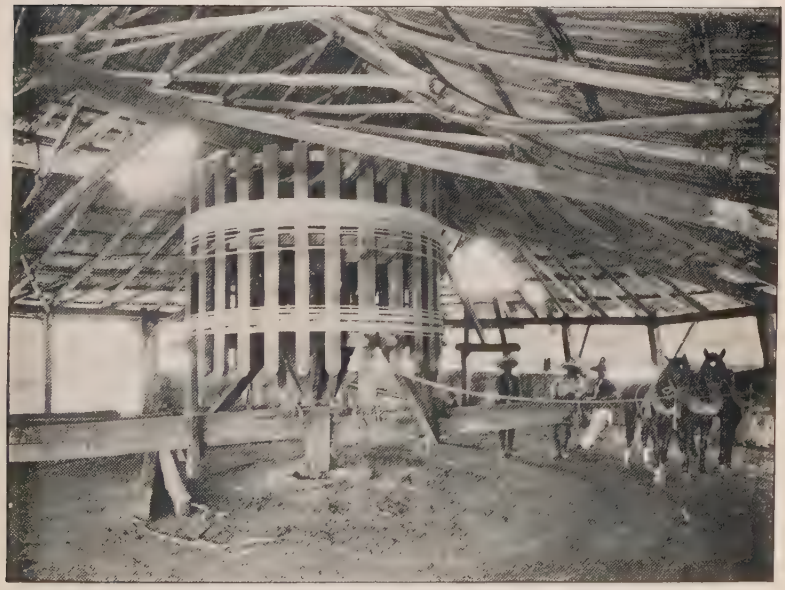
resin and dabbed it on their canoes, terming the mixture *chicle de pato*.

It cannot be accurately stated, therefore, upon the subject of crude petroleum in Mexico, that probability has as yet resolved itself into certainty. Investigators and capitalists have still to feel convinced that oil in abundant and paying quantities exists. Some years ago a Mr. J. W. Wiley, who is certainly not unknown either in Mexico or the United States, declared that—"after making a thorough study of the petroleum-fields, and after many explorations, I find that there is a larger extension of paying oil-springs in the Republic of Mexico than in any other part of the world; that this is not a supposition, but a reality." This enthusiasm upon Mr. Wiley's part has yet to be justified by results.

Two oil-currents are supposed to flow through Mexican territory, one down the Pacific Coast and the other down the Atlantic Coast, coming together below the Isthmus of Tehuantepec, and forming a subterranean lake and deposit of oil, with a much larger extension than the famous oil-fields of Pennsylvania. There are believed to be more seepages in Tabasco than in any known part of the world, and more subterranean deposits, unless, perhaps, an exception can be found in those of the Caspian Sea in Russia, at the "Noble" well, which has a flow of some 1,000,000 gallons daily. Estimating the amount invested by American and British capitalists to date, perhaps some $6,000,000 (£1,200,000) have been invested in oil-fields in Mexico.

It may be said that the entire Atlantic coast of the Republic shows traces of oil and asphaltum, while in the northern part of the Republic there exist numerous springs of the same substances. Mineral-oils and petroleum have been found in many localities, principally in the Valley of Guadeloupe, Hidalgo; Lake Chapala; Puerto Angel and Pochutla, in the State of Oaxaca, as well as in other places. In the month of June 1898, a concession was granted to a London firm by the Mexican Government for the establishment of the industry of petroleum extraction, the grant holding good for ten years. The firm of S. Pearson and Son, Ltd., the Messrs. Furber and other capitalists have sunk a great deal of time and devoted an immense amount of capital to the pursuit of the much-

PRIMITIVE FORMS OF MINING.—Raising ore by the chicken-ladder.



PRIMITIVE FORMS OF MINING.—Raising ore from the shaft by horse-whim.

needed wells of petroleum. Prospects, indeed, in endless number exist; but the pursuit of the mineral has been so persistent, and so much outlay has been expended thereon, that capitalists naturally feel that some definite results should have been achieved.

The most successful wells are at the Ebano fields, belonging to the Mexican Petroleum Co., which have for the last two years been supplying the Mexican Central system with all the oil used by their new oil-burning locomotives. Last year the Central Railway Co. entered into a contract with the Mexican Petroleum Co. for a further term of 15 years. It is found that a saving of nearly 30 per cent. on the fuel bills is effected by burning oil instead of coal.

The Mexican Petroleum Co. in June last was reorganised with a capital of $50,000,000 (£10,000,000), taking in a number of other oil-companies or owners in the States of Tamaulipas, San Luis Potosi and Veracruz, involving several millions of acres of oil-bearing lands. The Mexican Petroleum Co. threaten to become the virtual kings of the petroleum interests in Mexico, and to dominate all rivals.

The Kansas City, Mexico and Orient Railway are employing a number of experts along the territory through which their line runs upon petroleum well-sinking, and the yield has been far from discouraging. The discovery of efficient wells would mean a great deal to this company, and it may be taken for granted that their efforts will not be confined to one district alone, but that they will expend a sufficient sum of money upon their important quest throughout their territories. The Interoceanic Railroad is about to extend its line from Teziutlan to some oil-fields in the district.

Although but little publicity has been given to the work which has been proceeding for some considerable time past in the south of Mexico in regard to the exploration for oil, this has been of a far-reaching and highly important character. Upon it having been reported, in 1900, to Messrs. S. Pearson and Son, Ltd., the contractors who have already carried out a large number of public works in Mexico, that oil indications had been discovered on some land owned by them, the firm sent out a geological expert to report generally, and, this having proved satisfactory, they began exploring by drilling

on the Isthmus of Tehuantepec. From that time to this they have continued actively at work, having in addition opened up properties in Tabasco and Northern Veracruz.

Messrs. S. Pearson and Son hold from the State Government important and extensive concessions for the States of Veracruz, Tabasco, Chiapas and Campeche, as well as concessions in Tamaulipas and San Luis Potosi. On the 600,000 acres of land which they own, and upon the several properties over which they have secured sub-soil leases, there have been found numerous indications of oil. The firm have over 1,000,000 acres of leased land, practically all that they have thought would prove of interest or value to them. The Isthmus fields have been developed, and oil has been found in such quantities that the firm are erecting a refinery at Minatitlan, designed upon the most modern plans, and capable of treating from 500 to 700 tons of oil per diem. When I visited the scene of operations in the month of January of this year, the place was a hive of industry, and it was not difficult to appreciate where and how the large sums of money which have been expended, had been employed. The refinery itself, the first section of which should be at work before the end of the present year, is of an especially complete character, while other works undertaken include the construction of several kilometres of railway, the erection of wharves and landing-places, numerous substantial houses for employees, and capacious offices for the use of the firm.

The little town of Minatitlan is located on the river of Coatzacoalcos, some 20 miles above Puerto Mexico (formerly known as the Port of Coatzacoalcos), the terminal port of the Tehuantepec National Railway on the Atlantic. Ships of from 6,000 to 7,000 tons cargo capacity will be able to lie alongside the refinery. For the purpose of distributing the oil around the Gulf of Mexico, Messrs. Pearson have built a steamer of 3,000 tons capacity. The oil-field that will supply the refinery is connected with it by pipe-line. So soon as the refinery is completed, the firm will be in a position to market its products, for which there already exists a pronounced local demand. The oil has a paraffin basis, and produces very satisfactory percentages of motor-spirit, benzine, illuminating and lubricating oils.

The Furbero oil-fields, the original concession to work which was mainly in the hands of the late Mr. Frederick William Cheesewright, a distinguished English engineer, and the several Messrs. Furber, are being actively worked by the latter, who have sunk an immense sum of money in the enterprise. That oil of a superior and marketable character exists is established beyond question, but local railway transportation is lacking to make the fields sufficiently remunerative. In time no doubt this deficiency will be supplied.

Mr. William Randolph Hearst, the millionaire newspaper-proprietor of New York and San Francisco, has expended considerable sums of money upon investigating the oil-producing possibilities of a large area of land in the State of Chihuahua, which he and his mother hold conjointly. A thoroughly-equipped expedition was working that ground last year, but with what precise result I do not know. The outcome, however, could hardly have been successful without the fact becoming known in the neighbourhood, where one man's business is every man's business, and secrecy in an operation of this widespread character almost impossible to preserve.

One of the most pleasant surprises which awaited the Republic last year, when a number of eminent geologists from all parts of the world attended the Geological Congress in Mexico City, was the announcement that Mexico contained vast coal-fields. How vast, and of what precise commercial value, has not yet been determined. The bare statement, however, must have been specially agreeable to the Mexicans, since hitherto they hardly suspected their wealth, and have been depending upon the U.S.A. and Great Britain for their coal-supply. The realisation of their coal possessions must have come to them as a further step towards independence of supplies from foreign countries.

What the discovery of these coal-fields means to Mexico can well be imagined. It is with them, as with all nations, one of the greatest necessities of progress. Coal formations and peat are to be found in the States of Coahuila, Puébla, Michoacán, Guerréro and Veracruz, besides other portions of the Republic which are less known. The State of Coahuila has become the pioneer in the coal-mining industry of the Republic, and the mines at Barrotean, belonging to the

Monterey Steel Company, and Las Esperanzas, belonging to the Mexican Coal and Coke Co., have come especially prominently into notice. In December 1904 another Company, also located in the State of Coahuila, was organised, under the name of Compañia Carboniferado Agujita, for the purpose of exploiting the coal-beds at Sabinas. The Compañia Nacional Exploradora de Carbon y Coke, with a capital of $1,000,000 (£100,000), owns some promising coal-fields on the San Blas Hacienda, in the State of Coahuila. The Union Pacific Coal Co., with headquarters in Omaha, U.S.A., have secured control of between 25,000 and 30,000 acres of land in the vicinity of Durango. The advantageous geographical position of Coahuila, and the fact that it is provided on both sides by excellent railway facilities, speaks well for the future operation of its coal-beds; and although the output of the entire Republic must, for many years, remain but a very unimportant factor as compared with the actual consumption, I consider that the coal-mining industry will eventually make progress in the same proportion as other mining enterprises.

Deposits of anthracite coal in Sonora have attracted much attention, and several local and foreign companies with small capitalisations have been organised to open them up, and, if found remunerative, to work them permanently. Mexican peat deposits are not much utilised. In many districts charcoal is provided cheaply, and used for smelting and iron coking; but the charcoal industry is in a worse position to-day than it has ever been in before, in some districts a positive famine prevailing. This has necessarily meant a heavy loss to the manufacturing and metallurgical industries, which have undoubtedly outstripped the transportation facilities, and the supply. It would seem as if the smelters of Mexico would shortly have to investigate the practicability of using some other kind of heat than that produced by coal —for instance oil or electricity.

Coal has been found in the State of Puébla, and up to 1890 some 59 different coal-mines had been opened up in that State. Poor facilities for transportation, difficulties encountered in mining labour and the indifferent quality of the coal found all conduced to failure. Along the Gulf of

California, extending north to the Arizona line, coal was found and used by the local smelters as early as 1870. In 1890 an English Company secured a concession over 4,000,000 acres of land in this belt, but the enterprise failed, a Mexican Company which took up the land afterwards likewise coming to grief. The coal found here proved to be anthracite, and contained about 15 per cent. ash and sulphur.

CHAPTER LXVIII

Mining—History of discoveries from 1524-1907—Early discoveries—Spanish tributes—New districts opened up—Discovery of *patio* process—First school of mines—Anthracite coal discovered—Geologic Commission—First electric plant—Chihuahua mining—Principal districts—Waterson and Palmarejo Mines—San Francisco del Oro—Santa Eulalia District—Deepest Workings—Geological formations—Abasola and Jiminez districts—Coahuila mines—Aranzazu copper mines—Alvarado's Pamillo mine.

The history of mining in Mexico constitutes so enormous a subject to discuss, that not one volume alone, but many volumes, would be necessary to do it full justice, and even then I doubt whether any one writer could possibly present anything like a complete record of the vicissitudes, the dangers, the joys and the disappointments to which the pursuit of Mother Earth's hidden treasures have given rise in Mexico.

What we do know, more or less accurately, is that, while an abundance of gold, silver and copper was certainly mined in a primitive manner by the ancient Toltecs and their successors the Aztecs, it was only in the year 1522 that a definite discovery of silver was made in Mexico. This took place in Taxco, in the State of Guerréro, and the discoverer was a Spaniard, who sent a sample of his treasure to the Spanish King, with many pious and loyal good wishes.

The next locality to be laid under tribute was Pachuca (State of Hidalgo) in 1524, which was followed by Zacatecas (State of same name) in 1540. Some 8 years later the white metal was found in abundant quantities at Guanajuato (in the State of Guanajuato), but between 1548 and the year 1565 nothing remarkable took place (except the invention of the "patio-process" of treating the ores, which was due to the

MICHOACÁN MINES.—The famous Dos Estrellas Mine, Tlalpujahua.
(Viewed from the South.)

See pp. 300-311.

ingenuity of one Bartolome de Medina, who lived at Pachuca), while in 1568, some rich silver and gold ores were found at Santa Barbara, in the Parrál district of the Chihuahua State.

In 1600 the now important mining camp of Parrál was itself founded, and has been a consistent producer (with but brief intervals of inactivity) from that day to this. Other camps, which have not as yet made much stir in the mining world, followed at intervals, namely at Guazaporez in 1628, and Urique in 1630. Botapilas (in Chihuahua) was discovered in 1632, and is to-day one of the most celebrated mining districts in the Republic of Mexico.

Mining continued actively among the Spaniards from this time onwards, vast hoards of the precious metals being sent away to the Mother Country by almost every vessel. To how much this amounted will probably never be known. Records of a certain kind were kept, but these were very imperfect, and no doubt much of the gold and silver mined was stolen by the King of Spain's Viceroys and their officers; but even then his Catholic Majesty was enormously enriched by the contributions received from New Spain. In the year 1773 the reigning King, Charles VI., issued his famous "Mining Decrees." The encouragement held out to the Spanish explorers evidently proved of value, for a few years afterwards, namely in 1778, the famous Catorce ("Fourteen") mine was unearthed in the State of San Luis Potosi, and proved one of the richest found up to that period. Then followed the discovery of the Cucisamey mines in Durango, and the same year witnessed the long-promised establishment of the School of Mines, the first to be established in Mexico.

Mining now took on a more serious and more scientific aspect. Human labour gave place to horses and mules, both of which were employed far more generally than was formerly the case. Principally were they used for working the patio-process, but also for turning the whims and for carrying the ores to the treatment grounds.

In the height of the mines' success, the famous German Professor and great South American explorer, Baron von Humboldt, arrived in Mexico, and became keenly interested in the mines, pronouncing them to be "among the richest and

greatest in the world." He prophesied the wealth of the country, and to-day is witnessed the accuracy of his estimate. In 1824 the famous Palmarejo district (in the State of Chihuahua) came into notice, and was almost immediately followed by more discoveries in the State of Zacatecas, namely the Fresnillo mines. It was here that the second great Mining School of Mexico was established, in 1853. Many minor discoveries were made between this period and 1871, when the first artesian well was sunk at the Mexican mint. Improvements in mining machinery also commenced to have their influence upon mining generally, and in 1877 compressed air was used for the first time at the Catorce mines, in San Luis Potosi.

Coal was found in moderately paying quantities in the State of Coahuila in 1880, at a place called Sabinas. In 1883 was celebrated the first centennial of the School of Mines, while in the following year, 1884, successful efforts brought about the unification of mining legislation, which, up to that time, had been in a state of hopeless confusion. The introduction of the first effective and powerful pumping plant for drainage took place in the Real del Monte mines at Pachuca (in the State of Hidalgo), and at the same time discovery was made of the celebrated Concheno mines. One of the first successful mining exhibitions in Mexico was organised by the Governor of Zacatecas in 1890, and was held in the Municipal Palace of that city. That year also proved memorable on account of the Guanajuato mines becoming better-known through the "bonanza" strikes on the Cinco Sonores Pozos; the introduction of what is known as the continuous pan-system, by Mr. M. P. Boss, and worked on an extensive scale; and the discovery of anthracite coal in the State of Sonora. The following year was instituted the Geologic Commission of Mexico, and two years later, 1892, still further improvements and consolidations of the mining law were effected.

The year 1893 witnessed the march of progress in mining matters still proceeding. The first electric-plant was installed on the Santa Ana mines at San Luis Potosi; antimony mines were discovered in the same rich State, at a place called Wadley; cupryo-auriferous ores were found at Santa Fé

Pichocalco, in the State of Chiapas, and the McArthur-Forrest process of cyaniding, now generally used throughout Mexico, was first introduced by an English Company owning the patents. In 1897 La Reina Mine was discovered at Cusihuiriachic, in the State of Chihuahua, and fresh interest was displayed in the copper mines of Tepazala, in the State of Aguascalientes. The year 1904 was distinguished in Mexican mining circles by the sensational strike of the rich sulphide ores in the West Veins of the Esperanza Mine, at El Oro (Michoacán), and which have since been almost worked out.

In the same year the first attempt at a permanent Mining Exhibition was made through the efforts of the Chihuahua Government, which introduced a bill for that purpose into Congress.

Of the £8,500,000 obtained in 1825 from the mines of the whole of America, Mexico produced upwards of £4,000,000, and three of the districts, namely Guanajuato, Zacatecas and Catorce, produced one-half of the annual nett produce of Mexico. During recent years the number of mines in operation has actually decreased, although the amount of aggregate production has steadily increased. The great mining region runs from the north-west to the south-east, following the direction of the Sierra Madre Cordillera, extending from Sonora to the south of Oaxaca, a distance of about 2,574 kilometres. The immense parallelogram which is formed by this region has a width of about 402 kilometres. The richest mines have been discovered on the western slope of the Cordilleras, at an elevation of about from 915 to 2,440 metres above sea-level. It is here that most of the historical mines are situated, the Spaniards having commenced to work this region in 1526 and continued until 1700, with the result that the mines in their days produced the sensational value of £354,639,361 in silver, while the total production of Mexican mines, including gold, silver and copper, to the present date probably amounts to £600,000,000.

I may here state that these figures are not hypothetical, but are taken from the official records which exist in the City of Mexico, while those relating to the early days are supplied by the Government Mint records.

The principal mining districts in Mexico are Chihuahua, Guanajuato, Oaxaca, Sonora, Durango, Jalisco, Michoacán, Zacatecas, Hidalgo, Querétaro and the State of Mexico. There are several others, such as Veracruz, Sinaloa and the Territory of Lower California, which have of late come into notice as mineral producers; but development in all of these has been slight up till now.

In Chihuahua the mines, which are spread practically all over the State, the largest in the Republic of Mexico, contain copper, lead, mercury, silver, salt and some coal mines. Iron, zinc, antimony and arsenic are also met with. The number of mining corporations represented in the State of Chihuahua is a little over 100, whereas the properties which they own or manage may be put down as quadruple that number. The American Smelters Securities Co. own a large number of mines such as the Veta Grande, the Botello, the Tecolotes, and the Mina Vieja, which are located in the various districts of Guadeloupe, Parrál, Santa Barbara and Santa Eulalia. The Batopilas Mining Co. owns a large group of mines in the Batopilas district. The Company has a capital of $9,000,000, and the present Mexican Minister to the U.S.A. (Señor Enrique C. Creel) was, up to the time of his appointment, a director of the Company. A large number of prominent Washington capitalists are interested, as well as certain London capitalists. The Batopilas is one of the oldest mines having been worked by the Spaniards in the Colonial days and large amounts of silver were extracted. The present owners have shipped in silver bars over $19,000,000.

The Waterson Gold, Ltd., is a British enterprise, established in 1902, to take over the properties of Mr. J. J. Waterson of Ocampo, Chihuahua. The enterprise has not proved uniformly successful, reconstruction having been carried through and a new process of treatment experimented with. It is interesting to note that Mr. Waterson was one of the 18 men sent out in the autumn of 1862 by the Union Ironworks of San Francisco to build one of the first mills in Mexico. He received the sum of $600,000 (gold) from the English Company which purchased his mine.

The Palmarejo mines are the property of the Palmarejo and Mexican Goldfields, Ltd., and are situated in the extreme

western part of the State. The Palmarejo is one of the largest and most promising mines in the State, the value of the shipping ore being from £100 to £150 per ton. There has been some talk of the mine being sold. The advent of the Kansas City, Mexico and Orient Railway will spell for the Palmarejo a new era of prosperity.

El Rayo Mining Co., whose properties are near Parrál, have done a great deal of active development during the past year or two, including over 7,000 ft. of shafts, drifts, raises and winzes. The ore here averages about $10 (£2) a ton, and, with the completion of the reduction plant, the property should enter the ranks of profitable companies. At Guadeloupe the famous Rosario mine, which in the early forties produced $30,000,000 in ore, is still a great property, and owns a dump with over $1,000,000 in gold value. I understand that this is under option to an English corporation, who propose to still further develop it.

The Dolores mine, which is owned by a British Company, has been only moderately successful up to date. It has undergone both change of management and increase of capital, which is not surprising perhaps in view of the fact that the mine has been hitherto almost inaccessible owing to lack of transport facilities. Every single pound of supplies has had to be borne on muleback over a rough mountain trail of more than 100 miles. Undoubtedly the property is a good one, the nett earnings for July, August and October last year amounting to £11,200, but a great deal more than this will have to be reaped before shareholders can expect anything like a continual flow of dividends.

The great mineral belt which contains the mines of Galeana, Dolores, Santa Cruz de Santa Ana, Los Angelos, Cebollitas, San José de Cruces, La Cumbra de San Manuel, Trigo, Calabacillas and San José de Gracia, is undergoing active development, and many of the properties above referred to are likely to be heard of in the near future. The Calabacillas, for instance, was recently acquired by some Utah capitalists, and is already being opened up on a large scale. This mining district has been connected with Parrál by wireless telegraphy. Some of the mines are producing silver, running 60 oz. to the ton. El Tesoro mine, which is owned by some St. Louis

capitalists, is prosecuting its development with great vigour and very satisfactory results. The Santa Cruz de Santa Ana, which, in its time, has produced over $10,000,000 worth of silver and gold, is now the property of Americans. Within a short ride of this section are the finely-developed mines of Los Angelos, opened up to the depth of 500 ft., and exposing a high-grade of milling ore, worth $1,000,000 in value. Adequate machinery has now been erected, and Mr. F. W. McConnell, who has been in charge for some years, is very hopeful of the results. In this same district are several hundred very promising undeveloped mines which are at present lying dormant for lack of sufficient capital to work them. The whole section is fortunate in possessing a supply of labour trained in the early forties by the rock miners of Cornwall, and among them are many good drillers, timber men, blacksmiths, and millmen.

The greatest silver-lead mine in Mexico is undoubtedly that of Santa Eulalia in this State. It is situated about 15 miles south-east of Chihuahua in a lone range of stone hills. The ores, which are usually carbonates, are found in the limestone, generally along or near fault-planes or porphyry dykes which cut through the line in many places. These mines were discovered in 1704, and the total output since that date is estimated as high as $9,000,000,000 (Mex.), exceeding those of the famous Guanajuato, with an estimated production of $800,000,000 (Mex.), and those of Zacatecas with $650,000,000. At the present time the Santa Eulalia mines are producing at the rate of from $12,000,000 to $15,000,000 (Mex.) per annum. Two narrow-gauge railroads have been built from Chihuahua to Santa Eulalia to haul the ores from the mines. The Juarez Mine produces from 1,200 to 1,300 tons of ore monthly, and is under option to some Americans for $1,000,000 (gold). Among other important districts here are the Victorino (silver and lead), Ojinaga (where some 165,000 acres of land have been acquired by W. R. Hearst, of New York, in fee simple), Santa Domingo (placer), and Las Vigas (copper). All of these districts are to be covered by the Kansas City, Mexico and Orient Railroad, now approaching completion.

The district of Jimenez is in the south-east corner of the

THE POWER PLANT OF THE SAN FRANCISCO DEL ORO MINES, SANTA BARBARA DISTRICT, PARRAL.

See p. 254.

State, and disputes with Parrál the honour of being the oldest mining district. The greatest producing mine here is the Cigarrero, a very old mine, worked by the Spaniards, and now yielding 3,000 tons of ore per month. The owners are constructing a railroad from Paca station to the foot of the mountain, where the ore is brought down by gravity-trains. Other mines also being worked here are the Sierra Almonoya, which is very similar to the Santa Eulalia, and the Naica. Some copper mines in this district are producing between 5,000 and 6,000 tons annually. Las Adargas, about 25 miles from Jimenez, produces a large part of the lead fluxing ores used at the smelter of Torréon. I believe that a smelter is to be erected at Jimenez, Mr. J. F. Johnston, a prominent mining man of Parrál, having secured a concession for the purpose.

The whole of this district is destined to reap some benefit from a scheme which comprises the construction of a large electric-power station on the banks of the Conchos river, and which would supply the mines with electric power within a radius of 100 miles. The mines in the Chihuahua district are largely in the hands of enterprising Americans, who are also doing an excellent trade generally. On the other hand, agriculture is largely in the hands of the Mormon colonists.

The Abasola district, which is part of the political division of Iturbide (Chihuahua), contains the famous Cusihuiriachic mine, situated in one of the oldest camps in Mexico, having been discovered in 1666, and estimated to have produced some $100,000,000. According to the old Spanish records, taxes or royalties were paid on $47,000,000 up to 1810, and it is believed that, including the large amount that must have been smuggled out without paying the heavy royalties demanded by the Government, the total production to that date was from $60,000,000 to $80,000,000, and yet there is only one mine in the entire camp that has been worked to a depth of over 400 ft. This exception is the Santa Marina, which has been worked down to a depth of 1,056 ft., and shows good ores at the bottom of the deepest workings. The veins of Cusihuiriachic are wide and persistent, and the ores are very rich in silver.

The district of Parrál is an exceptionally large and rich

one, and has been worked since 1556. The ores found in this locality generally carry gold, silver, copper and lead. One of the best-known mines in this district is the San Francisco del Oro, adjoining the quaint old Spanish town of the same name, about 14 miles from Parrál, and belonging to a British Company, of which the Earl of Denbigh is the Chairman. The mines form a distinctive group comprising about 10 different properties, all adjoining, and extending over some 194 acres. Only one reef, however, has been worked, namely the San Francisco, where the work done is of a highly important and profitable nature. Within the past few months a mill has been erected, capable of dealing with about 300 tons a day, while the general equipment and completeness of the mine have been very carefully carried out. The management, which is in the hands of Mr. James Hyslop, is both economical and efficient, and the mine generally is among the most promising from a productive point of view of any which I visited. With a rich body of ore available, an abundance of water and a plant containing the newest and most efficient machinery, the future of the San Francisco del Oro mines is exceedingly brilliant.

The San Patricio, 5 miles south-west of Parrál is being reopened after some years' inactivity. Years ago this mine was a heavy producer, but workings caved in. Not far away is the famous Palmilla mine belonging to Pedro Alvarado. This mine has now been leased for 15 years to Mr. James P. Flynn, and he pays 45 per cent. of proceeds to Alvarado, who now finds himself in financial difficulties owing to extravagance and too many loans to friends. Pedro Alvarado, who was and remains an ordinary peon, has been the subject of many romantic writings upon the part of fanciful journalists, but while much imagination has been indulged in, the man himself is a curious mixture of the good and the vulgar. There is no doubt that the mine is an extraordinary producer, and is still to-day one of the finest properties in Mexico.

Among the most largely interested firms in Coahuila's diversified mining pursuits is the firm of Guillermo Purcell y Cia, already referred to. Their properties are situated in both Coahuila and Zacatecas, the neighbouring State. It was Mr. Purcell who first brought to public notice the great

potential riches of these mining camps. He has been from the commencement closely identified with the celebrated mining locality at Sierra Mojada. Mr. Purcell formed an expedition to thoroughly exploit the district in 1875, and both he and his brother, the late Mr. Thomas Purcell, organised the Compañia Constancia and erected the first modern blast-furnace plant ever built in the Republic. Smelting of ores to-day forms one of the foremost industries of the country.

In 1886 the firm took over the Aranzazu Copper Mines, as well as several others, forming later, and retaining still a considerable interest in, the Mazapil Copper Co. This corporation ranks as one of the largest mining and smelting concerns in the North of Mexico, and towards the commencement of this year (1907) completed a large, new blast-furnace plant at Saltillo, for the treatment of its own lead ores.

The same firm are interested in several other important mining properties, such as the San Juan en Mapimi, the Cia Minera Naica and the Cia Exploradora de Coahuila, the latter being concerned in an entirely new camp, the Gruñidora, in the State of Zacatecas, which, so far, has offered every encouragement to the proprietors. Although not freely marketed, in consequence of being very tightly held by the few members of the Syndicates, the Naica and San Juan shares command a sensational premium at the present time.

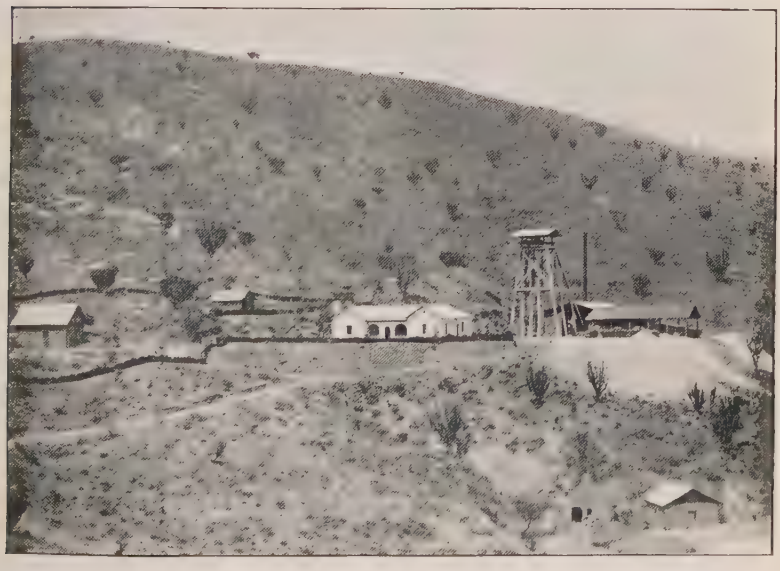
CHAPTER LXIX

Mining (*continued*): Mining in the State of Oaxaca—Long neglect—Former Aztec and Spanish workings—New and promising field—Ocatlán — Peñoles — Totolapám — San José — Taviche — Litigation retards progress—New districts opened up—American and British capital—The Oaxaca smelter—A new industry established.

Owing probably to its somewhat remote position, and the fact that only one line of railway conducts thither, the State of Oaxaca had up till recently met with but little attention upon the part of Anglo-Saxon investors; but during the past two years an awakening to the possibilities of this State has ensued, with the result that many millions of American capital are coming into the country to take their place side by side with the small amount of British. The Southern Railway, a British Corporation, running from the City of Puébla to the City of Oaxaca, was among the earliest pioneers in this district. The mining wealth of the State has, however, hitherto hardly been realised; but within the next few years it is not too much to say that the Oaxaca mines will challenge the attention of the world. Development has been going on quietly but none the less surely, and the shrewd Americans within the past 4 or 5 years have invested $10,000,000 gold (£2,000,000) in Oaxaca mines and smelting plants. There is only one State in the Republic which can show a larger amount of similar investment than this, namely Guanajuato, with $12,000,000 gold, while the State of Jalisco and Oaxaca now stand side by side in regard to the amount of U.S. capital invested in mining enterprises.

The principal mining districts are as follows: Ocatlán, Peñoles, Totolapám, Taviche and San José. The first-named is a rich copper and lead-ore district, in which a good deal of development has taken place. The ground lies between the

OAXACA MINES.—The Baldomero Mine at Taviche.



OAXACA MINES.—The Vichachi Mine at Taviche.

See pp. 288-289.]

town of Ocatlán and the Taviche camp, and was only discovered, and then by accident, in 1903. All sorts of stories, real and imaginary, are told concerning discoveries of rich mines, but that related in connection with Ocatlán is though romantic quite true. A prospector happening to be returning to camp very much under the influence of liquor, stumbled over a protruding rock, which, in his anger, he viciously kicked. Without thinking seriously of what he was doing, but with the instinct of his kind, he put a small piece of the rock in his pocket, and several days afterwards discovered it there. More out of curiosity than conviction, he had it assayed, with the result that it was found to carry good values, and eventually led to the opening up of the whole district. The principal properties here are El Guebesha, upon which the first piece of mineral rock was discovered, and which has now been proved to be a very valuable property; the Treadwell, the Royal Crown and several other mines in the immediate neighbourhood, which produce copper-ores, and which offer every appearance of becoming richer as depth is found; La Fortúna, around which every inch of land has been denounced for miles; the Ventúra, in which a shaft has been sunk to the depth of 100 ft.; the Humboldt, where a high-grade lead-ore with small quantities of copper is being unearthed, and several others of minor importance (see also p. 292).

The Taviche district may be regarded, perhaps, as the most promising in the whole State, and new mines are here being opened up in all directions. The experimental stage may be said to have been passed some months ago, and indeed would have been reached sooner, had more capital been available. Although it is not improbable that the Aztecs and Spaniards knew of the richness of this district, no serious work had ever been done there, and it is only since 1901 that the present camp came into existence. Several Americans arrived on the spot during the French War, and again in the early nineties; but little or no work was carried-on on account of the difficulty in dealing with the water, an obstacle which modern machinery and scientific methods of mining have almost entirely overcome. Among the better-known properties of the Taviche district is the San Juan mine, which produces silicious gold-silver ores. Here a good deal of work

has been done, a 20-stamp mill erected and a dump collected aggregating $400,000 (gold). Shipping-ores netting $1,200 a day have been treated, but, unfortunately, the mine has been the subject of litigation, and within recent times the property has been put into the hands of a receiver. The San Juanita is worked from the San Juan shaft, and is also shipping-ore. Adjoining are the Fresno No. 3 and Belvoir, on the same vein, the working-shaft being in the village of Taviche. Here some hoisting and pumping plant have been erected, and several large dumps have been collected and are being developed in the meantime by hand. Within a few months' time a 10-stamp mill will have been erected.

The Escuadra, which is the largest mine in this camp, has been greatly retarded in development by litigation; there is a fine installation of machinery, including a full hoisting-plant, compressed-air drill, etc., while some 3,500 ft. of workings have been carried out in the new works, the same amount having been effected in the old. Here, again, some of the original owners of the mine have been non-suited by the supreme Court of the State, but litigation is not yet at an end.

The Zapote has steam-plant, and is developing a good character of ore, some of which is being shipped to the smelters. The development is continuing, and is down 750 ft. or more. Zapote is considered one of the best opened-up mines in the district, and, with some 5 others, is using air-drills. Las Mujeres has developed a considerable amount of good milling and shipping ore, while the Veronica, owned by the same proprietor, has erected a steam hoisting-plant, and is showing good values. The San Francisco, which among other mines I visited, has recently struck some very rich ground, which makes the second lucky find within the past few months. The Rosario is owned by an English syndicate, as is also the Consuélo. On the first-named mine the shaft is down over 500 ft., and is being carried across a deep ravine, working in ground of the most promising character. The Consuélo has sunk a three-compartment shaft, and has excellent prospects.

The Vichachi, which is owned by American capitalists, consists of 32 pertenencias lying between the Chivo and the

Rosario properties. The mine was discovered by Mr. Constantine Rickards, the English mining engineer, now deceased, some 20 years ago, and has been developed to its present workings by a 3-compartment shaft, timbered and lagged down to over 250 ft. This mine has been shipping ore regularly since last July, paying all development expenses from the liquidations, and piling up a large tonnage of second and third class ore for a future mill. The ore is a silver sulphide, with free gold running into copper in paying quantities. The ore at present carries some ruby silver, and upwards of 5 per cent. zinc. From the Vichachi, indeed, the highest-grade ore in the camp is being shipped, while the quantity is improving daily. The mill is to be erected at the end of this year, and in the meantime the ore reserves are steadily increasing.

The Rosita, also owned by an American Co., is down 250 ft., and is shipping ore, as is the Providencia-San Carlos, which has two shafts down 270 ft., with 2,700 ft. development work done, and milling-ore blocked out to the value of $380,000. The Chichicapa, an American-owned mine, after having erected a steam-plant and going down 320 ft., by means of which a large body of milling ore was developed, has, unfortunately, been shut-down, but is not likely to remain so for long. Should the Vichachi mine continue to produce as satisfactorily as it is doing now, the proceeds of its rich ores will be devoted to reopening the Chichicapa, or this may be sold to a separate concern.

El Chiro, the Baldomiero and the Victoria are all developing slowly but surely, each having a steam and compressed-air plant at work. The Providencia No. 2 is opening up well, but the Poder de Dios, which has already erected a 10-stamp mill as well as a concentrating and cyanide plant, is unfortunately closed down at the present time. The Conejo Colorado has a 10-stamp mill, and a full electric plant. It is being developed at a low level, and is also milling the outcrop. The Conejo Blanco is working on the same vein, and possesses a very heavy outcrop which runs high in gold values.

In Totolapam (district of Tlacolula) capital and intelligence are being brought to bear with very satisfactory results. Hitherto the district has been very inaccessible, owing to the lack

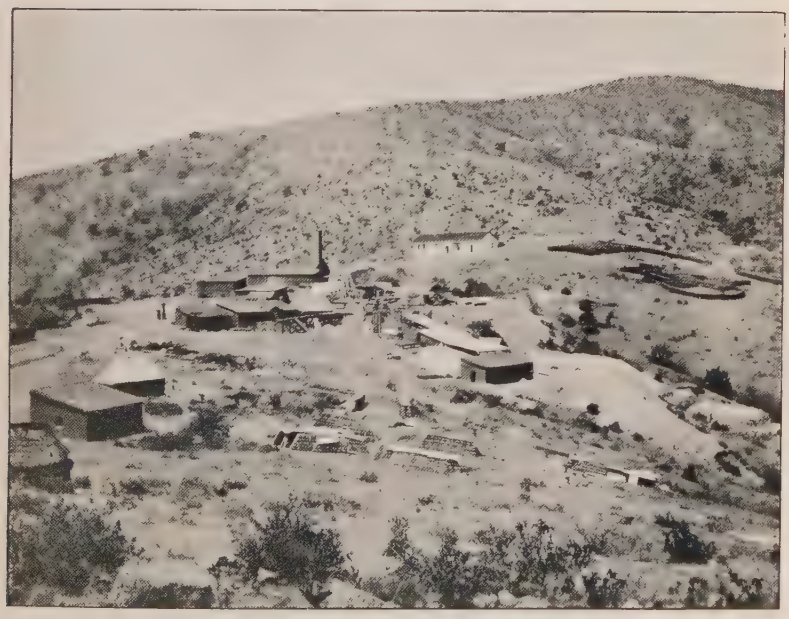
of railway facilities; and, being situated in a very high locality, transportation has been difficult. In order to reach Totolapam, some 65 miles south-east of Oaxaca, it has been necessary to travel many miles over a little-inhabited country, across some deep barrancas, and traverse the San Luis river. To-day, however, the approach has been considerably facilitated by the improvement in roads and the nearer reach of railway extensions. On the other hand, the district is a well-known mineral producer, considerable sums having been made there in days gone by, notably in connection with the Victoria and Tapada mines, which have yielded over $600,000 (£60,000), the La Parada de San Ignacio having produced $500,000 (£50,000), and La Tejuana $400,000 (£40,000). All this was netted from the rich ores, the poorer-grade not yet having been touched. With modern methods of treatment, however, these ores could now be treated with great success; and no doubt they will be shortly. A mill has already been erected and will soon be in operation to deal with these low-grade ores.

Sinking on the Parada mine is to be conducted to a depth of 1,000 ft., while on the Victoria mine a shaft has already been sunk 400 ft., and extensive cross-cuts and levels have been driven. A full equipment of the necessary machinery is to be found upon both of these mines as well as on the Tapada, the latter being equipped additionally with a 15-horse-power gas-engine. The Tejuana mines are undergoing a further development, and are showing a satisfactory quantity of shipping ores, running unusually high in gold. Situated some three leagues to the west of this group of mines are the Alta Gracia, which yielded to Mr. Constantine Rickards, the owner, the considerable fortune which he left when he died. This mine had been worked by the Spaniards over 150 years ago, but every pound of ore taken out had to be sent overland to Veracruz and from there by vessels to Europe, a process which was still followed by Mr. Rickards when he came into possession. How rich must have been the quality of the ore to have successfully withstood such an expense as this may be readily gauged.

Among other mines which enjoy bright prospects are Los Reyes, which has a 10-stamp mill, and is being rapidly developed; the Magdalena, which comprises several properties

Oaxaca Mines.—Gallows frame on the Vichache Mine, Taviche.

See pp. 288-289.]



Oaxaca Mines.—Los Ocotes Mine, *near* Ejutla.

of silver-lead, mostly having been worked in the olden days; the Tlacolula, which has recently been shipping its ores to the smelter; El Parian, north of Oaxaca, which, with the Santa Catarina, has done a considerable amount of development lately and with satisfactory results; the Zavaleta, south of Oaxaca, which is owned by English proprietors, and is a considerable property, with a mill and other equipment; as well as the Mitla, which is developing ores in gold, silver and copper.

The San José district is still a young one, and was opened-up after that of Taviche, from which it is only a few miles distant. The principal mines here are the San Juan, the Palmilla, the Dos Estrellas, the San Diego (which is as yet but a prospect), La Cuma, the Trinidad and the Natividad. The character of the country-rock is almost entirely porphyry, with true fissure veins. The outcrops show no break of any kind, and are composed of good, strong quartz. In the matter of transportation the district is singularly fortunate, since it is cut in two by the new Ejutla railway, while, as the valley is flat, it will not be necessary to build a wagon-road, as has been the case in some other districts.

The Peñoles district is situated about 6 kilometres from the village of the same name, and is mainly in the hands of American capitalists and prospectors. No very serious work has yet been undertaken, but development is proceeding; so far as this has gone, the results have been eminently satisfactory. Among the principal mines so far open are El Rey and the Francis, both belonging to the Georgia-Mexican Mining and Milling Co.; the Marietta, which, by-the-bye, is not in the Peñoles, but in the Ocatlán district, belonging, however, to the same Company; and one or two others which are yet too much in the prospective stage to deserve special mention.

By far the most important enterprise in the State, however, is the Oaxaca smelter, the steel chimney-stacks of which can be seen long before the city itself is reached. The plant consists of 2 combination copper-lead furnaces, 46×162 ft. at the tuyeres, 24 ft. high over all, and 19.2″ from centre of tuyeres to charging floor level, fitted with the necessary power-plant, pumping-plant, sample-works, assay-laboratories, etc. The whole of the fittings and equipment are of the most modern description, and, down to the minutest detail, have been care-

fully thought-out and efficiently supplied. The capacity of each furnace is about 175 tons of lead charge, or 300 tons of copper charge, per day of 24 hours. The whole of the works have been arranged with a view to extension and the addition of converters, when the output warrants it. The buildings of the plant proper are all of steel frame and galvanized iron. The blowing-in of this smelter, which is one of the largest and most important in the Republic of Mexico, took place on May 31st, and it practically means the regeneration of the State of Oaxaca as a mining centre.

Especial interest attaches to the operations of La Fortúna Mining Company, an American corporation, with head offices in Washington, D.C., on account of the few companies in Oaxaca carrying out development work on copper properties, in spite of the absolute need of such ore for the successful operation of the new smelter which has recently been erected in the district. If the Ocotes mines be excepted, there has probably been more development done on La Fortúna than upon any property in the camp. The mine has only been actively worked for about 2 years, operations having commenced with the formation of the Company in October 1905. The Treadwell claim (see p. 287), about 4 kilometres from Ocatlán, has been very satisfactorily opened up, and promises most encouragingly. The country rock is andesytic breccia, underlain by massive andesite, while the vein is clearly traceable for 2,000 metres continuously along the surface, varying in width from ½ metre to 4 metres. The underground development consists of a 2-compartment shaft sunk (up to May last) 100 metres, and 138 metres of drifts and cross-cuts. The first ore was met with at the 60-ft. level, where an ore body 1.2 to 1.5 metres, and averaging about 3 per cent. copper, was cut. Twenty-five centimetres on the hanging wall was of higher grade, carrying 16 per cent. copper and 900 grams silver. So promising are the prospects of this property that it is hoped to erect efficient milling machinery very shortly. The Guebesha and Royal Crown mines, in the same district, are also considered to possess the same character of ore and as favourable prospects.

Some promising onyx quarries have lately been discovered in the State of Oaxaca, namely at a place near Tequisistlan,

district of Tehuantepec. The firm of Laurence B. Spyer and Co., of Mexico City, are interested in these, and the onyx seems not only to be of the best quality, but to exist in practically limitless quantity, the colours being white, yellow and green.

In few parts of the Republic is railway construction making surer headway than in the State of Oaxaca. The opportunities for extension are undoubtedly great, and with the many intelligent and enterprising men at present to be found in Oaxaca it seems that these opportunities will be made the most of. The San Juan line runs from the City of Oaxaca to the centre of the Ocatlán mining district, with its terminus at Taviche. Branch lines connect with most of the Taviche mines, and they will feed the new Custom Mill. The San Juan is 40 kilometres in length. The Oaxaca and Orient Railway is 45 kilometres, running from Oaxaca to Tlacolula. A direct line is contemplated from Oaxaca to the port of Veracruz, and an inspection of the route proves it to be at least feasible. The Veracruz and Pacific Railway has already a line from Veracruz to Tierra Blanca, which is about one-third of the distance between Oaxaca and the Port. A continuation of this line from Tierra Blanca would be costly but possible, and in view of the growing importance of the Oaxaca mines, and the amount of capital which is coming into the State, I regard the construction of this line as well within the range of probability.

One of the earliest pioneers of the Oaxaca fields was Mr. Constantine Rickards, who died in the City of Oaxaca on February 19th, 1905, aged 77. He had been half a century in the country, and among other famous properties he owned or had an interest in were the Alta Gracia and Parada de San Ignacio groups in the district of Tlacolula; the Soledad group in the district of San Carlos; the Taviche group in the district of Ocatlán, and the Yaveria group in the district of Ixtlán, covering an area of 126 acres. No one was more highly esteemed than Mr. Rickards, who made several journeys to England, and married an English lady, Miss Jane Arden, of Dunsford, Devon, who died in 1888. Three sons, Frederick, Constantine and Edward, are still in Oaxaca, and carry on the good name and the high business ability of their father, one (Mr. Constantine Rickards) being a prominent advocate.

CHAPTER LXX

Mining (*continued*) : The Guanajuato Mines—The Development Company's operations — El Pinguico — The Peregrina — The famous Valenciana—The Reduction and Mines Co.—The Sirena, and Consolidated Mining and Milling Co.—The Mineral Development Co.—The Amalgamated Gold Mines—The Jesus Maria—Zacatecas Mines —Territory of Tepic Mines—El Oro—Tlalpujahua—Aguascalientes—Durango—San Luis Potosi—Puébla—Querétaro—Jalisco—Tamaulipas —Tabasco—Sonora.

Although always ranking as one of the most famous mineral districts in the whole of Mexico, containing, as it does, some of the most celebrated silver-producing mines in the world, it is only in the past few years that a new lease of life has been granted to Guanajuato, and to-day it is one of the busiest camps in the Republic. The revival of the gold and silver mining industry is due to the initiative of American enterprise, nine-tenths of the mines which are working to-day being in the hands of strong American Syndicates.

The largest group is that owned by the Guanajuato Development Co., an American corporation formed in the State of New Jersey, and with head offices at 40, Wall Street, New York. The capital of the Company is $1,000,000 (U.S. Cy.), and it is controlled by men of great practical experience and with intimate knowledge of the Guanajuato camp. The principal properties owned are El Pinguico, El Cedro, La Central and the San Isidro ranch. The first-named mine has attracted universal attention by reason of the immense output in gold which it is yielding; indeed, it is proving one of the richest mining properties in the world. A considerable amount of work has been done, including driving through the ore several hundred feet, the vein having been found to grow wider and the ore to increase in value as depth is attained. The average value of this ore is $50 (£10) per ton.

THE GUANAJUATO MINES.—The Barreno shaft of the Peregrina Mine.

El Cedro consists of a large number of mining claims, covering a superficial area of 200 acres, the vein passing through it having an average of 40 ft., and ore of an average value of $12 (£2 8s.) per ton.

The Central group of mines are situated in the immediate proximity of the Cedro properties. Some 30 veins traverse them, showing values in gold and silver ranging from $10 to $20 (£2 to £4) per ton. It is expected that these mines will be producing a regular output of 200 tons a day shortly.

The San Isidro Ranch covers 16,000 acres, of which two-thirds are contributory to a single drainage basin. This is being dammed, and will be able to supply about 6,000,000 cubic metres (1,500,000,000 gallons) of water for the use of irrigation, mines and mills and supply factory power.

The success attained by the Guanajuato Development Co. is mainly due to Messrs. McElhiney and Bryant, the promoters and managers, whose thorough business capacity is undeniable, and should succeed in rehabilitating the once-great fame of Guanajuato as a mining camp.

The principal mine in this district, after Pinguico, is the Peregrina, of which Messrs. McElhiney and Bryant are President and Manager respectively, the owners being the Peregrina Mining and Milling Co. The history of this mine goes back for many years, and it is traditionally one of the richest in the State. An immense amount of development has taken place, and a thoroughly-equipped mill, plant and machinery have been erected. There are 120 stamps at work, and the average value of the ore passing through the mill may be put at $10 (£2) per ton, yielding a profit, after all expenses, losses and taxes have been deducted, of $1,700 (£340) per day, or, say, $500,000 (£100,000) per annum. The Blaisdell process has lately been introduced, and this will effect still further economy in working and additional gain in product.

Among other enterprises managed by the Guanajuato Development Co. are the Aparecida, the Victoria, the San Prospero, the Guanajuato River Gold Mining Co., the San Mateo Mines, the Guadelupe Mines, the Natividad and the La Luz.

The Guanajuato Consolidated Mining and Milling Co. own

the famous Sirena group, as well as 50 per cent. of the Barragana and Constantina mines; 63 per cent. and entire ownership respectively of the San Vicente and San Bartoló; 50 per cent. of the Cardonas and 51 per cent. of the Carmen mines. The total amount of acreage represented by these Companies is 597.30 acres, and the whole are under the able and successful management of Mr. M. E. MacDonald, as manager, and Mr. Bernard MacDonald as consulting engineer. The Sirena mine is the most prominent of the Company's group, and has already thoroughly established itself as a valuable property. The mine is admirably equipped with an 80-stamp mill, cyanide and power plant and machinery, as well as an excellent installation of tramways. The result of the handling of the ores is a recovery of a minimum of 85 per cent. nett of the original values. The Company has already commenced to pay dividends at the rate of 6 per cent. per annum, but this represents, in my opinion, only a very modest proportion of what it will eventually return to its shareholders.

The Guanajuato Reduction and Mines Co. own a famous group of historical mines, including the Valenciana, the Catá, the Mellado and the Rayas, all of which have, in years past, been famous producers. The first-named, Valenciana, has a recorded output of $300,000,000 (£30,000,000) to its credit. It is not, however, upon past achievement that this Company is resting. Under the present spirited management of Mr. C. W. Van Law, a large amount of development upon entirely new ground has been undertaken, and a thoroughly energetic and comprehensive programme is being carried out. The Bustos mill, which has been working since last year, will shortly be extended so as to handle 1,000 tons of ore a day. There is a complete electrical equipment of the most modern description, while the cyanide plant at the Flores Hacienda, which was started in March 1906, has been in constant operation since, working 24 hours a day.

The Mineral Development Co. own the Nueva Luz mine, situated in the angle between the famous Valenciana and the Nopal. Rich ore-beds are supposed to dip directly from the Valenciana, entering the Nueva Luz at an angle of 45°, and at a depth of 950 ft. below the surface, at a point opposite

the general shaft of the Valenciana. As far as human judgment goes, and in accordance with all reasonable supposition, the same rich beds will be found to continue down and into Nueva Luz ground. A shaft is being sunk and is making good progress; but it will probably not be before the end of this year that the rich body of ores can be struck. The Manager of the mine, Mr. H. A. Miller, is very confident of success, and the Mineral Development Co., being supplied with ample means and enterprising managers, there is very little doubt that before the shaft reaches its ultimate depth of 2,920 ft., cutting the veins of the Nopal group on the way, the Mother Lode vein will have been struck and success achieved. The same Company also own La Torre mines and La Sorda mine.

The Guanajuato Amalgamated Gold Mines are working with great success the Jesus Maria, Villarino, Sangre de Cristo, Providencia Remédios and Dolores mines, all of which are historical, and are gradually being opened-up by the Company. The Jesus Maria, in particular, has a remarkable record as a producer, having yielded over $25,000,000 (£2,500,000) in days gone by. Mr. Lawrence P. Adams, the manager, is an experienced and competent engineer, and thoroughly understands mining from A to Z. Under his direction, the system of mining adopted upon the La Luz properties is panning-out very successfully.

Among other Guanajuato properties which have been, and which again will be, worked, are the San Cayetana, with a tunnel having a total length of 3,140 metres (10,299 ft.); El Pabellon, a famous producer in the early 50's; La Union y Constancia; Tajo de Dolores; the Refugio; the Bolañitos and the Cubo.

The rehabilitation of the Guanajuato mines is due almost entirely to the continuous and efficient service of electric power which is provided by the Guanajuato Power and Electric Co., without which many of the low-grade propositions, and even the higher-grade, could never have been worked at a profit. The power is transmitted from the Duero river, 101 miles distant from Guanajuato, a distance which to most mining engineers would have seemed wholly impracticable under former conditions.

The former mineral wealth of the State of Zacatecas is not reflected in its present condition, although this is one which is consistently improving. The earliest discovery of silver in this district was in 1546, by one Juan de Tolosa; and so rich were the mines found to be that a city was established there in 1585, by special royal decree. The two most active districts of to-day are those of Mazapil and Concepcion del Oro. In the first-named are the famous Mazapil Copper Co.'s mines, which carry on very extensive operations, and are consistent producers. A railway has been built into this camp, and a smelter, with a capacity for 5,000 tons, has been erected a few miles away, across the border State of Coahuila. El Pabellon and San Juan mines are likely to be reopened shortly; the famous El Pabellon mine is also about to change hands.

Chalchihuites camp is now being opened up by some American capitalists, and already possesses a fine plant. The firm of Guillermo Purcell y Cia, of Saltillo, Coahuila, are considerably interested in the Mazapil Copper Co., and also have holdings in Zacatecas mines, as well as owning the Coahuila and Zacatecas Railway. El Bote mine, one of the oldest worked, is under offer to an American syndicate. Other mines of importance in Zacatecas include the Mezquital, which belongs to a British company, but has not hitherto proved successful; the Dolores y Anexas; Nueva Quebradillas; the Rio Tinto, etc., belonging to the Cia Metalurgica Mexicana; Candelaria y Anexas; Bilbao; San Antonio; San José de la Cruz; Joya; Santa Marta; and the San Rafael el Grande.

The Magistral Copper Mines are shipping 50 tons of ore daily, yielding from 5 to 10 per cent. of copper. La Capilla has the same grade of ore. The Zaragoza, a Mexican-owned mine, has a rich deposit of peacock-copper, with sulphides and a large body of galena. A new mine, the San Roberto, is being opened up, and two very old properties, the Veta Grande and the Tajos de Panico, are being worked on a modest scale.

New waterworks which will increase the supply by tenfold will materially improve the mining position of the Zacatecas district, while the Government have in view the construction of a large dam.

Oaxaca Mines.—The Chichicapa Mine, showing Antiguas.—*see p.* 289.

Oaxaca Mines.—The Escuadra (left), El Orden (right), Taviche.
See p. 288.]

The mining resources of Tepic have only been partially developed, but a favourable opinion is entertained of their future mineral resources. The class of ores comprise silver, gold and a little copper. The most important district is Acaponetre, where are located, amongst other mines, the Candelaria and Montana del Oro, as well as the Francisco and Mina Vieja, the two first being gold-bearing and the two latter silver. The San Lorenzo and Trapichillo mines recently changed hands, and are about to be gradually developed. The Zopilote Mine claims to have £1,400,000 worth of ore in sight. This mine has been in almost continual operation during the last 22 years, and has yielded considerable profits. The Cucharas Mining Co. is installing mill concentrators, and has been working about 5 years, its plant having a capacity of 50 tons daily. The Purissima mines have been lately taken over by a French Syndicate, while American (Cincinnati) capital is invested in El Cambio, in the Rosa Morada district, and Californian (Los Angelos) capital has taken over, and is working, the San Vicente mines, near Santiago Excuintla. Other notable mines in the same Territory are La Castellana, Cardanillo, Paloma, San José de Ventanas, La Colorado, San Dionysio, La Libertad, and the Ventanas.

One of the best-known mining districts in the world is the El Oro camp, one, moreover, of comparatively recent development. The principal mines here are those belonging to the El Oro Mining and Railway Co. and the Esperanza Mines, Ltd., the former with a capital of £1,150,000 and the latter with £455,000; both mines are exceedingly well equipped. Unfortunately, in regard to the El Oro, a too-lavish outlay has been made upon the mill and equipment; the former, which was originally to have cost £67,000, in the end swallowed up no less than £160,000. I have not been able to discover upon what grounds such an excessive outlay was necessary, and the shareholders, complacent as they have ever shown themselves, would do well to consider extravagance upon all outlays for equipment as tending to prove very disadvantageous in a mine which has been proved up till now to contain nothing better than moderate-grade ore.

In regard to Esperanza Mines, Ltd., exception has been taken to the expenses at both the London and the New York

offices, these totalling up to nearly £12,000 a year, apart altogether from Directors' fees, mine management, etc. Dividends have been declared amounting to 160 per cent. on the capital, which is satisfactory enough, no doubt; but in all probability the halcyon days of the mine have passed, and it must be regarded for the future, and until any new rich discoveries take place, as an ordinary mining proposition only.

Two other properties adjoining, and in which also the El Oro Railway and Mining Co. have great interest, are the Somera and the Mexico Mines of El Oro. The latter is doing fairly well. The Victoria mine, which lies to the west of El Oro, and adjoins the Somera to the south, is attracting some attention, and will doubtless become a valuable property if present indications count for anything.

Another promising district is the Sultepec, of which more is likely to be heard. Most of the properties here are in the hands of private capitalists, who have not as yet expended much upon their development. The district was worked years ago by the Spaniards, but it is by no means yet exhausted. Other mines in the same State are Las Pleyades, La Union, Oro Nolan, Westphalia, El Oro and Reforma. The Descubridora is undertaking fresh development, and has prospects of cutting a rich vein very shortly.

The Tlalpujahua district which adjoins, but is practically in the State of Michoacán, is celebrated for the extremely rich Dos Estrellas mine, which was discovered by the French engineer, M. François J. Fournier, who has had a very romantic if eventually successful career. The $100 shares of this Company have stood as high as $9,000 each. There are two mills, one containing 130 stamps and the other 120 stamps, capable together of dealing with 30,000 tons of ore monthly. There are some who consider the Dos Estrellas one of the most wonderful mines in the world, and it certainly has produced sufficient to merit such distinction. It has been systematically and skilfully developed, and will probably last for another 100 or 150 years at least.

The Augangueo and Trojes mines, comprising some 14 different properties, are owned by a wealthy Mexican, living in Mexico City. The Urucapasco, a slightly developed camp up till now, producing gold and silver, has only been worked

since 1904. The Carrizal, on the river Balsas, possesses a mill and concentrating plant, and is owned by a New York Company. The Inguran Copper Mining Company is shipping moderately, and claims to have 2,000,000 tons of ore in sight. The Luz de Borda Co. is working two of its mines, the old Peso and the Luz de Borda. The famous mines of Borda and Tesoro de Borda, out of which Joseph de la Borda (or de la Borde, as he really was called), made so huge a fortune, are still kept active, although it is doubtful whether they will ever again yield such a sum as $36,000,000, which they did in the middle of the eighteenth century, and in the brief space of 8 years.

The San Rafael is a very valuable mine, the $25 shares of which have been sold at nearly $1,000 apiece. Los Ocotes mine, containing 187 acres, is in the immediate neighbourhood of Dos Estrellas and the Borda Antigua, a fully-equipped property with excellent prospects, its ores assaying from $10 to $60 per ton. The Vista del Oro last year struck a remarkably rich vein.

Very little mineral exploration has been done in the State of Aguascalientes, and what producing mines exist are mainly in the hands of Messrs. M. Guggenheim and Sons, of New York, the owners of the Aguascalientes as well as the Monterey (Nuevo León) smelter. Towards the end of last year rumours of rich veins of tin ore having been struck were current in the district, but nothing important seems to have resulted. One assay showed a high result, the ore running to 10 per cent. pure metal. There is no doubt that tin-mines were worked by the Spaniards in the olden days with some success.

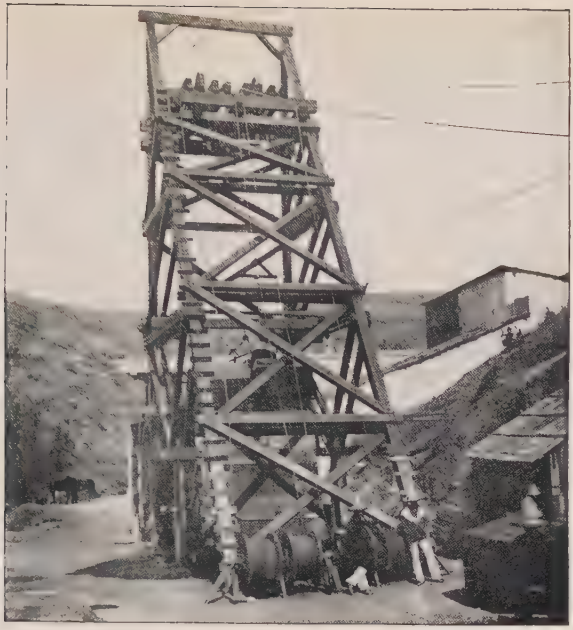
A world-famous mining State is that of Durango, which was one of the favourite mineral fields of the Spaniards, and where they had some of their severest trials with the native Indians. Many million pounds' worth of treasure have been taken from the Durango mines, notably from the Avino, which yielded rich tribute some 350 years ago, but in the hands of a British Company seems somehow to have less to justify much further exploration. At present a direct difference of opinion exists betweeen the engineer appointed to examine the mine—Mr. J. G. Hardy—and the General Manager, both

as to the extent and the value of the ore-resources. As a result, Mr. R. A. Varden, of Messrs. Bainbridge, Seymour and Co., was sent out to Mexico last June to make a further report upon the property.

The principal mining districts of Durango are San Demas, Tamazula, Papasquiaro, San Juan del Rio, Durango and Nombre de Dios, in all of which are found gold, silver and copper. The number of mining claims registered exceeds 2,500, covering an area of 23,000 hectares. The famous Serro del Mercado, or Iron Mountain, which is situated 2 kilometres north of the city of Durango, contains such an inexhaustible iron deposit, that it is estimated that it can supply all the foundries of England for a period of 330 years.

The State of Hidalgo is one of the richest mining sections in Mexico, and has the additional advantage of being close to the Capital. Here are located the famous Pachuca mines, as well as those of Zimapan, the former containing the Real del Monte mines, which were sold last year to the United States Mining and Smelting Co. for the sum of £710,000. The chief metals found are gold, in small quantities, silver, mercury, copper, iron, lead, zinc, antimony, manganese, cinnabar and plumbago. There are in existence some 36 reduction works for the treatment of the finer metals and the smelting of iron ore, but only a few of these are at present in operation. The lack of water in sufficient quantity has proved detrimental to the mining interests at Pachuca, but efforts are now being made to overcome this drawback. A good deal of foreign capital is invested in the mines of the State, the number in actual operation exceeding 120.

The State of San Luis Potosi has in its time ranked as the third greatest bullion-producer of Mexico. Undoubtedly, the mineral wealth of the State is still great. The district of Catorce (Fourteen) is world-famous for its enormous deposits of silver ores, many of which have been worked for 50 years without in any way exhausting the supply. The principal mining districts are, besides Catorce, Matehuala, Cedral, San Luis, Guadalcazar and Salinas, in all of which districts silver, copper and lead-ores are found in great abundance. At Vanegas a large smelter plant has been erected, having a



GUANAJUATO MINE.—Shaft and Electric Hoist at the Nuéva Luz Mine.

See p. 297.]

STATE OF MEXICO MINES.—The celebrated Esperanza Mine at El Oro.

See p. 299.]

capacity of 600 tons per day. The Tiro General is shipping ore to Aguascalientes smelter at the rate of 5,000 tons per month. It is a low-grade ore containing silver, lead and copper.

Matehuala is perhaps the most important camp after Catorce. In the latter district a large tunnel is projected, which will serve to develop some old mines below the old workings. The most noted quicksilver deposits in Mexico are at Guadalcazar.

The principal minerals found in the State of Puébla comprise gold, silver, copper and marble. There are at present over 150 mining claims registered, covering an area of nearly 2,000 hectares; but only a proportion of these are in active operation. The principal mining districts are Tezuitlan, Atlixco, Alatriste, Tlatlanquitepec, Chiantla, San Juan de los Llanos, Matamoros and Zacatlán.

The mineral richness of Querétaro is undoubted, the whole State being highly-mineralised, especially the districts of Cadereyta and Tolimán. The principal products are silver, galena, copper, iron, cinnabar, mercury, coal and lead, while among the precious stones are opals, garnets and similar deposits. There are about 60 mines in the Cadereyta district, 8 in Tolimán and 35 in Jalpan. Although there are some 20 establishments for the reduction of ores, only a small proportion of these are at present in operation.

Many experts are of opinion that in the State of Querétaro will be found some of the most profitable mines in the Republic, and several shrewd capitalists have followed up their convictions by investing considerable sums in the various districts. Among these may be mentioned the firm of G. and O. Braniff, of Mexico City, who hold to-day probably some of the largest mining interests in the State of Querétaro. These gentlemen organised a small Company, consisting exclusively of themselves, to carry out the particular mining enterprises which they have acquired, including some very valuable water-powers. The mines are situated about 45 miles east of the National Railroad Trunk-Lines, and in a very mountainous but picturesque country. They contain silver, lead, copper, zinc, antimony, bismuth and arsenic, but of these several products only the first three mentioned are being

handled, all the rest being considered as "refractory" elements, according to the present practice in Mexican mining. Probably in a short while a different view will be taken, since modern electrolytic processes should solve the problem of treatment, and allow of separation of the greater part of these elements, each of which would then become marketable as bullion.

The Braniff group of mines, which in consequence of their great future importance I select for particular mention, are divided into three—the Maconi, the Doctor and the Ranas, the whole forming a triangle, with the furthest point thereof some 10 miles from the other two. In all, there are comprised some 45 mines, some of which were worked in former years by the Spanish owners, and their records date back as far as 200 years. Messrs. Braniff have commenced operations upon but five or six of these, the immense amount of ore blocked out being sufficient for their present ideas of exploitation, and the remainder being held in reserve. To afford some idea of the enormous dimensions of ore contained in one of these mines, I may mention that the Doctor, which gives its name to one of the three groups, and is perhaps the oldest mine of all, occupied the services of two distinguished French engineers for two full years in underground surveying and making the plans for the future workings. Even this lengthy period, however, proved insufficient to complete the examination and report.

The history of the Querétaro mines has been the history of practically all the mining camps of Mexico. The old smelting process in vogue in the Spaniards' time allowed of only the richest kinds of ores being successfully treated, namely those which ran to over 1 kilogram of silver per ton. All the remainder of the ore, which we to-day should consider well worth mining, was left untouched and in its virgin state, and this ore is to be found in almost untold quantities at about 1 kilometre below the surface. Considering that every pound of ore had formerly to be brought to the surface upon men's backs, and that to crawl up this kilometre incline-shaft meant hours of daily poorly-paid toil, which no peon would care to undertake when other and less painful employment was obtainable elsewhere, it is quite comprehensible why the

Spaniards had to abandon the mines when they had worked out everything above this level. But what they left untouched has formed a magnificent legacy for their successors. It is estimated that during the 200 years which have elapsed since the mines were worked, an enormous amount of tonnage of ore, the values running between 400 and 700 grammes of silver (now deemed a handsome return), has been blocked out.

The present owners have erected a complete hydro-electric power-transmission plant, situated in the dead centre of the wild ravines which distinguish this particular property. It seems almost incredible that in these savage recesses man can have succeeded in lodging his latest machinery; but here, nevertheless, can be found to-day ponderous generators, weighing as much as 7 tons each, which have been dragged along and over the steep and precipitous mountains on the back of the patient, plodding "burro" and there successfully erected. The hum and throb of the machinery break the stillness of centuries, while the blowers, hoists and smelting-plant run day in and day out, Sundays included, on the once almost impregnable heights of this beautiful and picturesque region. What will not the daring of man accomplish? In such achievements as these one is reminded of Regnard's famous saying: *C'est dans les grands dangers qu'on voit les grands courages.*

The principal problem in working these mines is that of coal, and therefore the owners decided to put in a large concentration plant in order to reduce the ores in the proportion of about 10 to 1, thus smelting the concentrates and marketing the bullion with only a nominal amount of coal. Every ton of this fuel has to be hauled across the mountains on the backs of donkeys, or in carts drawn by mules. Shortly an entirely new and wider wagon-road will have been completed, by means of which not alone coal, but bullion, machinery and merchandise will be transported with greater facility and less expense.

At present there are four separate and distinct smelting-plants working at these mines; but I understand that it is intended to concentrate all these into one large central smelter, with headquarters at Marcoin, which is situated at the lowest level. Belt railroads to receive the ores from the

other mines through chutes and over cableways, are being constructed, while a large and modern drilling-apparatus will make the plant quite complete and up-to-date in every respect. I may add that on the property are found some thirty square miles of some splendid timber and agricultural land, all of which form part of the Braniff holdings.

Some 129 claims in Querétaro State had been registered up to December 1905, while applications pending would bring the number to about 140. As soon as the Braniff properties commence to contribute regularly to the output, the figures of the Querétaro mines will show an appreciable advance, and the whole State as a producer will attract more attention probably than it has ever done before. While it is one of the smallest of the States of the Republic, I consider that both from a mineral and an agricultural point of view, it enjoys one of the greatest chances of prosperity.

A considerable variety of minerals are to be found in Jalisco, including silver, gold, copper, iron, lead and cinnabar. Most of the capital embarked is American, and the number of mining claims registered up to last year exceeded 800, covering an area of about 5,000 hectares, the total mineral production of the State being estimated at about 100,000,000 kilos, valued at over $1,300,000 (gold). There are between 80 and 90 mines in active operation, the principal districts being Ahualulco, which contains the mining town of Etzatlan; Hostotipaquillo, where the mineral resources are being vigorously prosecuted; Navidad, containing the Valenciana, El Moral, Rosa Amarilla and Keystone copper mines; Tula, containing immense deposits of iron ore; Western Jalisco, which has produced some of the most notable bonanzas in the mining history of Mexico; Ameca, where a new field of development has been opened-up of late; Palmarejo, where, however, development has made but small headway; Autlan, where some powerful American interests have lately acquired hitherto unworked prospects with a view to development; Mascota, formerly a famous mining district, but now allowed to fall into desuetude; and Aranjuez, where some very extensive deposits of ore in flat-bedded veins (*mantos*) exist, but few of which have as yet been developed.

The Mexican Premier Syndicate, a recently-established

MINING.—QUICKSILVER ROOM OF AN OLD PATIO MILL.

GUANAJUATO. -ENTRANCE TO THE PENGUICO TUNNEL.

English mining company, has entered the State of Jalisco with a view to extensive operations, commencing with the development of the Gachupinas mine, in the Hostotipaquillo district. The Springfield Mexican Mining Co. are erecting a mill at the Concepcion mines in the Ayutla district, while the Southern Pacific Railway Co. are proposing to erect a smelter for the capital city of Guadalajara. Work at the mines of the Chatterton Co. which had been suspended for some time has been resumed. This year Major Frederick R. Burnham, the well-known explorer, scout and mining expert, has visited the State of Jalisco with the idea of acquiring mining claims on behalf of Messrs. Guggenheim and Mr. John Hays Hammond, of New York.

In the Etzatlan district it is contemplated to open the Santo Domingo mine; 8 tunnels have already been driven, and 3 more are under way. One of these will be an immense cross-cut, entering the property near the Santiago River, and cutting every vein at an average depth of 2,500 ft., which will also be approximately the length of the tunnel. The report of Mr. Charles E. Hall, of Mexico City, was very encouraging, that gentleman claiming to have discovered ore in sight to the value of $12,000,000 (£1,200,000).

The famous old mine San José de Ventanas, in the Hostotipaquillo district, has recently changed hands; while the Estados mine, belonging to a British company, is to be developed. It is in El Favor camp, and located near Tecalitlan. In the Navidad camp a large cross-cut tunnel is being driven by the Santa Lucia Mining Co., and has already entered bonanza ore.

The State of Tamaulipas is known to contain a vast amount of mineral wealth, but it has not yet been systematically developed. The minerals found comprise gold, silver and copper, as well as salt, marble, asphalt, etc. The number of mining claims registered amount to nearly 100, covering between 950 and 1,000 hectares. With a promise of sufficient capital coming into the State both from Europe and the U.S.A., the mineral wealth is likely to be materially developed within the next year or two.

In Tabasco mining receives but little attention, and while there are indications of deposit of coal, cinnabar and petro-

leum, a small amount of development work has taken place, so that it is impossible to speak with any accuracy of the future prospects of mining in this State.

Although but little explored, and at present deprived of anything like systematic railway transport facilities, a state of things which will shortly be greatly remedied, Sonora is known to be one of the richest mineral sections of the Republic, the leading products being silver, gold, lead, copper, coal, antimony, iron, cinnabar and graphite. It is to be regretted that, for the most part, the mining interests of the State have been in very unsatisfactory hands, and so little confidence has been felt in the principal operators and promoters that capital has hitherto been somewhat shy, and was scarcely likely to take up Sonora mining interests under the late *régime*. No doubt, the building of several new railroads in the State will give some impetus to the mining industry, and several new districts will be tapped. A customs-smelter has already been erected at Guaymas. The amount of British capital invested in Sonora mines at present, including that of El Mundo (Mexico) Mining Co. and the Barrancas, has hardly proved sufficient to encourage future operations. The latter concern, however, recently encountered a promising body of ore with assays from $2.50 (10s.) to $515.50 (£51 11s.) per ton.

CHAPTER LXXI

Mining (*continued*): The mining laws of Mexico—Moderation and simplification—Chamber of Mines—Influential management and membership—Copper and its future as an industry—Sonora deposits—Some shady history—Smelters and smelting interests—Monopoly feared—The trusts in America—Free smelters in Mexico—Smelting process—The Guggenheims—Career of M. Guggenheim.

The Mining Laws of Mexico have been pronounced by those who have lived and worked under the mining regulations of other countries the most enlightened and the most reasonable in the world. As compared with the complicated laws of the United States of America they are simplicity itself. As to Government taxation, to what extent recent legislation (1905) relieved it, may be gathered from the fact that the first year's working under the new taxation made a deficiency of some $4,000,000 to the National Treasury. Notwithstanding the heavy deductions allowed, the mining community thought them insufficient, and with the view to still further reductions approached the President of the Republic in March 1906, and he with his customary courtesy and good nature heard their complaints and promised relief and the lifting of certain burdensome restrictions. The specific requests preferred were as follows:

"1. The suppression of the 2 per cent. coinage tax on the value of silver, established by the decree of March 27th, 1897, and its reduction to ½ per cent. in the case of gold.

"2. Reduction to cost of the duties on separating, assaying, reducing and refining, and the application of those duties exclusively to bars of metal presented to the mints for those operations.

"3. Reduction from 3 per cent. stamp tax on the value of gold and silver to 1 per cent.

"4. Reduction of the 2 per cent. State tax on the value of the gold and silver to 1½ per cent.

"5. Monthly fixing, by the Finance Department, of the price of silver, copper and lead, which is to serve as basis for the collection of Federal and State taxes, this price to be founded on the average quotation of those metals on the New York market during the preceding month.

"6. Reduction by 10 per cent. of the assay estimate in the collection of the duties on ores that are to be shipped from one State to another, or exported from the Republic. This must be done by deducing from the weight of the ore that of the moisture which it contains.

"7. Reduction, from $10 to $5 per pertenencia, of the tax on gold, silver and platinum mine titles, as established by the law of June 6th, 1892.

"8. Reduction, from $10 to $5 per pertenencia, of the annual property tax on gold, silver and platinum mines as established by the previously mentioned law.

"9. Exemption from import duties for the articles here enumerated—sulphuric acid, mercury, sulphur, coal and coke, alkaline cyanides, hyposulphates, mine timber, nitrates of potash and soda, sulphate of copper, sheet zinc for metallurgy, and machinery and apparatuses for mines and metallurgical establishments.

"10. Adequate protection, by the Executive, of ore-treating establishments, which, employing new processes, such as cyanuration, are erected for the treatment of low grade ores or of dump accumulations from old mines."

Most of these requests were granted by the Government, others were modified, and some few rejected. The taxes on mining properties combine two kinds, one payable on the issue of the title deeds, and the other as an annual rental on the mines. The first of these taxes was formerly at the rate of $10 (£1) per pertenencia (1,000 square metres), or 2.47 acres, in the case of gold and silver mines, and $2.50 (5s.) per pertenencia on all other mines. By the law of March 25th, 1905, this tax was made into $5.00 (10s.) per pertenencia for all mines, regardless of the nature of the mineral to be exploited. The annual rental on mining properties was formerly $10 (£1) per pertenencia on gold and silver mines, and $2.50 (5s.) per pertenencia on all other mines. By the new law this tax is fixed at $6 (12s.) per pertenencia for all mines when the property does not exceed twenty-five pertenencias, and $3 (6s.) when the property contains more than twenty-five pertenencias.

For the current year (1906-1907) metals to the value of £1,500,000 will probably fall under the 3½ per cent. rates, £7,500,000 under the 2½ per cent. rate, and £1,500,000 under

GUANAJUATO REDUCTION AND MINES CO.—Sand leaching tanks.

GUANAJUATO REDUCTION AND MINES CO.—Precipitating Plant.

See p. 296.]

the 1½ per cent. rate; while £1,000,000 will be entirely free from taxation. The Treasury would receive £262,500 at this calculation, if silver is maintained at its present level, but should it fall, then the Government may have to put up with only £240,000. But they do not anticipate any collapse in silver.

In May 1906 was established the first Chamber of Mines, and to it practically every mine-owner, mine-manager and miner belong. At its head is the distinguished Mexican advocate, Señor Lic. Pablo Martinez del Rio, and the board of management is a powerful one. To Señor Lic. José Luis Requéna, one of the directors and principal shareholders in the famous Dos Estrellas mine, is due most of the success achieved by the Chamber, which is proving of immense value to the mining interests of the Republic, by co-operating with the Government in procuring legislative encouragement and support, cleansing the industry from fraud and suspicion, and generally building it up and maintaining it on a firm basis. The whole subject of further reduction in the Mining Laws was referred to the final decision of Minister of Fomento Molina, who gave his ruling last June greatly in favour of the Mining Chamber's petition.

It is generally admitted that, of all mining ventures, copper is probably the safest. That our good friends, the Americans, appreciate this fact is proved by the enormous amount of capital which they have invested in copper undertakings throughout the world and in Mexico particularly. The industry in that Republic has attained of late gigantic proportions, the country ranking next to Europe in the annual value of its output. The annual production stands already above that of Spain and Portugal combined. During the year 1906-1907 the production, I make bold to prophesy, will have aggregated 150,000,000 lbs., as compared with 115,000,000 lbs. the previous year, of which amount about 120,000,000 lbs. will go to the U.S.A. Large as this amount is, I go further in my forecast and say that for next year the production should be even greater. Indeed, I should not be surprised if it amounted to 225,000,000 lbs.

The total amount of copper produced to-day is far short of the world's demand, in spite of the fact that there exist throughout the universe some 4,626 different copper mines,

all of which are working at full pressure. For 16 years past copper has not been so dear as it is to-day, these being veritably halcyon days for the industry. With a 20-cent copper it is possible, I should think, to work at a profit almost any copper proposition, and the larger mines with good grades of ore are piling up profits so rapidly that they will shortly not know what to do with their balance. In this remarkable revival Mexico is fully sharing. The deposits of the metal are enormous in extent, and are, generally speaking, easily developed because the ore begins at the grass roots, and it is not necessary to sink deep shafts before reaching paying-ore.

Copper is found in more or less quantities and of varying quality in practically every State in Mexico. New copper companies are beginning development work in numerous directions, and for the next 5 or 6 years, at least, I believe that the production of copper in Mexico will show substantial increases, while the demand is, as I have intimated, not likely to diminish.

While Mexico has nothing like such mines as the Calumet and Hecla, which employ 7,000 men, and have paid away $100,000,000 (£20,000,000) in dividends, or the Copper Queen or the Rio Tinto, some remarkable properties are nevertheless to be met with, especially in the State of Sonora. The various interests in that State have now been more or less consolidated by a large amalgamation of the many valuable properties formerly owned in whole or in part by Mr. W. C. Greene, his principal concern being the Cananea Central Mines. In the month of December last, a new Company known as the Greene-Cananea Copper Co., was organised by New York financiers of great strength with a capital of $10,000,000 (£2,000,000), in which the principal organisers were Mr. Thomas F. Cole and Mr. Tom Ryan. The uncertain financial condition of the previous owner rendered it absolutely necessary that stronger support should be introduced, and this has been done to the great advantage of copper-mining in Sonora, and to the shareholders of the different concerns generally. The Cananea Copper Mines owned by the Greene Consolidated Co., the Phelps-Dodge Co. and the Democrata Mining Co., are producing ore to the extent of nearly 7,000,000 lbs. of copper per month, while there are vast

ranges of plant and machinery which have in erection and maintenance involved the outlay of many millions of dollars. While the history of copper mining in the Cananea district has not, up till now, been particularly worthy, and has many discreditable episodes inscribed against it, under the new auspices, it is likely to attain, and I trust maintain, a better reputation.

In the same State of Sonora is also located the Cineguita Copper Co., which has erected a smelter with 4 furnaces, rated at a daily capacity of 70 tons each, and with an actual working capacity of more than 50 tons each. Aguascalientes is the great centre of the copper-smelting industry of Mexico, having a smelter with a daily capacity of 2,000 tons; while in the districts of Asientos and Tepezala extensive mining operations are in progress, the output of copper ore averaging 1,200 tons monthly. The Fortúna mines are producing from 800 to 1,000 tons of copper ore per month. In Coahuila, the Mazapil Mining Co. own some valuable copper ore mines, which are treated in their new smelter at Concepcion del Oro. In the State of Guerréro, the Mitchell Mining Co. has a valuable property, its bullion running about 99 per cent. fine copper, and carrying from $12 to $16 (24s. to 32s.) in gold and silver values. In the State of Michoacán, the Doña Luisa Copper and Gold Mining Co. own La Natividad mines, which, up till now, have not been developed, however, and can only be regarded as promising prospects. In Western Chiapas some 15 different engineers are working upon copper prospects, the field being considered a particularly promising one. A rich copper strike was made near Cedral, in the district of Matehuala, San Luis Potosi, towards the end of last year, while active work is proceeding upon the copper mines of the Teziutlán Co., in the State of Puébla, located near the borders of Veracruz State, and within reach of the terminus of the Teziutlán branch of the Interoceanic Railway.

The Boleo mines, in Lower California, which are owned by the French house of Rothschild, and all the product from which, amounting to about 10,000,000 ounces of fine copper per annum, comes direct to England, being shipped to Falmouth, are considered the second chief copper mines in

old Mexico. Ore valued at nearly £950,000 was shipped in 1906. The Congréso Copper Co. of Mexico is also a British undertaking, having been registered in London as recently as June last year with a capital of £20,500. According to latest advices the company, which is now under keen management, is finding good ore in the Senado block, the returns being 6 per cent. copper, 30 per cent. iron, and a small amount of gold and silver.

Efforts have been made, and are not yet abandoned, to establish a gigantic monopoly in Mexico of the smelting interests. For the sake of the mining community at large, and in furtherance of the Government's well-known aversion to monopolies of any kind, it may be hoped that the attempt will not succeed. Already the mines are groaning under the grasping hand of some of the existing smelters; and if this is the case where competition to a certain extent exists, how much more severe would it prove if the contemplated amalgamation were to take place and a gigantic smelting trust became *un fait accompli?*

Smelters are, of course, indispensable, and being extremely costly undertakings to construct and conduct, only wealthy corporations or individuals can enter into the business. Gold, silver, copper and lead are mostly found in Mexican, as in other of the world's mines, together, and must be separated chemically and with the greatest scientific care and precision. The process adopted to-day is the outcome of many lengthy and costly experiments; and while it does not probably spell the last word in scientific treatment, it is immeasurably more effective than the old methods of extraction. As it is, the whole of the gold—or at least 98 per cent.—is secured, but some of the silver is lost.

As soon as the copper ores are received at the smelter they are weighed and credited to the proper owners, for the smelters handle the product of numerous mines, and therefore must—and do, as a matter of fact—keep an accurate account of every pound of ore they receive. Sometimes they buy the ore outright; but all the same a faithful record of each lot entering the smelter-yards is to be found entered in the proper books.

After being weighed, then, and assayed, the ores are roasted

for the period of 32 hours, to eliminate the sulphur. Then they enter a blast-furnace, when the crude copper is recovered in the form of heavy bars. These pass through the refinery, after which they are again put into the furnace emerging in a purer—but still not sufficiently pure—form. The copper is now found deposited in thick, heavy plates, each having a handle moulded on the sides. The plates are transported by means of powerful cranes to an enormous tank-room, in which the gold and silver still contained in the plates are extracted by means of the electrolytic process. Each plate is separately suspended in a tank of acid side by side with a sheet of pure copper. An electric current is sent through the tank, by means of which the plates decompose, the copper being deposited upon the copper sheet—or, as it is termed, the "cathode"—while the gold and silver fall to the bottom of the tank. Twenty-eight days are necessary to complete this portion of the process.

Next comes the refinement process. The copper being disposed of in a perfectly pure and marketable state, the gold and silver remain to be treated and separated. This is effected by a long and tedious chemical and electrical process, the silver being recovered in the form of small 8-lb. ingots, and the gold in single bars. To produce 1,000 ozs. of pure silver metal, 40 tons of ore have to be treated on an average, 1,000 tons for copper and 2,000 tons for gold. As an instance of the immense amount of metal daily reduced, it may be observed that in the American Smelter near New York City (belonging to the American Smelting and Refining Co.) are produced 200 tons of pure copper, 8,000 lbs. of silver and 1,000 ozs. of gold.

The Messrs. Guggenheim of New York are with the U.S. Smelting, Refining and Mining Co. practically monopolists of the smelting business in the north of America, and are endeavouring to become so in Mexico. They already have control of the immense smelters at Monterey and Aguascalientes, and with the extraordinary tenacity and pertinacity of their race they may yet secure the whole monopoly—which would be a consummation much to be deplored, and which it may be hoped will be prevented.

The Guggenheims are a remarkable family, and fair examples

of the successful German-Americans of to-day. Arriving in Philadelphia with the proverbial penny in his pocket, the late Meyer Guggenheim commenced life in 1847 by peddling stove polish. It would need a thrifty German to make sufficient money out of this apparently unprofitable occupation to save the amount necessary to set himself up in business. But young Guggenheim did it, just as the late Mr. Wertheimer, of Bond Street fame, and Sir Benjamin Phillips, who became Lord Mayor of London, did years ago on this side. Not only did he prosper, but young Meyer Guggenheim married, and begat seven sons. It is these seven sons who have built-up the American smelter business with the same remarkable skill and success that their father displayed in his career, first as a stove-polish peddler, and afterwards as its manufacturer, then as a lace-embroiderer and finally as a mine-owner. All this is distinctly to the credit of the Guggenheim family; but their craving to become the monopolists of the smelting interests in Mexico, as they practically are to-day in the United States, must be discouraged. Out of the seven sons four still remain in the smelting business, namely Daniel (President of the American Smelting and Refining Co.), Isaac, Murray and Solomon, Benjamin and William having withdrawn, and Simon, a gentleman at large, travelling about the world.

The only serious competitor to the Guggenheim Company was the United States Smelting, Refining and Mining Co., and that concern, after vainly endeavouring for several months to procure sufficient quantity of fluxing ores to run its proposed lead smelter at Jimenez, Chihuahua, retired from the field, leaving the American Smelting and Refining Company masters of the situation. Their 800 ton lead and copper smelter at Chihuahua is almost completed and is to be blown in November of this year. The Veta Colorado smelter, a recently organised concern, is not unlikely to enter into competition at first with a view to be being bought out at a big profit. It is also rumoured that Mr. Charles M. Schwab, formerly of the United States Steel Trust, may build an immense smelter at Santa Eulalia, but he being a *dilettante*, nothing certain can be said about him or his intentions.

The "Trust" only reduces one-fifth of the ores of the

THE CANANEA COPPER MINES, STATE OF SONORA, showing the Ronquilla Smelter.

Republic at present, there being outside of it many important and independent plants. These latter control about 14,500 tons daily, as against the Trust's 2,000 tons at the Aguascalientes smelter and 1,000 tons at the Monterey smelter. There are smelters in operation at Torreon, capacity 700 tons daily; at Jimenez (Chihuahua), capacity 250 tons; Alampos (Sonora), with 250 tons capacity; Palmilla (experimental), smelter belonging to Pedro Alvarado, Parrál (Durango); Guadalajara (Jalisco), 100 tons daily; Matehuala (San Luis Potosi), 200 tons daily; Oaxaca, 175 tons of lead charge or 300 tons of copper charge daily; Monclova (Coahuila), 400 tons daily; Mazapil (Coahuila), 300 tons daily; and others of smaller capacity.

It is to be regretted that British interests in the smelting business of Mexico have not prospered as was hoped would be the case. The option upon the Guadalajara smelter, which had been secured, had to be abandoned, and other schemes of a similar nature have failed of realisation. However, in June last the Mexican Smelting Corporation was formed in London to acquire some 3,000 acres of land at Tapado, Monclova, Coahuila, the centre of the coal and mining district, and to build a smelter, etc. Several prominent capitalists are interested in the Company, which has issued £200,000 debentures at 6½ per cent.

CONCLUSION

"In every work regard the writer's end,
Since none can compass more than they intend;
And if the means be just, the conduct true,
Applause, in spite of trivial faults, is due."

POPE: *Essay on Criticism.*

YEAR by year Mexico is becoming less and less dependant upon foreign countries for her necessaries and luxuries alike, and it needs no prophet to foretell that the day must come—and come soon—when the Republic, blessed as it is with conditions which are as unique as they are enviable, will be able to compete with other countries in the markets of the world. Labour, which is both abundant and cheap, great natural resources, a gradually-increasing population and a magnificent geographical advantage will all play their important *rôles* in Mexico's future prosperity. The United States of America will probably feel the effects of this condition of affairs more acutely than any other country, since it is thence that Mexico takes so much of her present heavy importations. But inasmuch as no inconsiderable portion of the Republic's home manufactures are the outcome of United States capital and United States enterprise, what will be lost upon the one hand will be regained with the other by the sister-State.

Mexico's position as a power for good was clearly demonstrated last year when her Government was solicited, in conjunction with that of the United States of America, to arbitrate in the tri-cornered squabble between Nicaragua, Honduras and Salvador, while her aid was also asked, and refused, in connection with subsequent troubles with Guatemala. That the Mexican President's efforts were rendered nugatory and his advice ignored by the belligerents, who

maintained peace only so long as it suited their purpose and violated the solemn conditions of the "Marblehead Compact" at the earliest opportunity, in no way detracts from the importance or the value of the services rendered by the premier Latin-American Republic.

To those who read History carefully, and there are no more thorough nor more intelligent students of the subject than the Mexicans of to-day, much may be learned by comparison and reflection. That the Chief Executive of the Republic has taken to heart the lesson afforded by Spanish colonisation, is abundantly clear in the present condition of the country. It has been recognised that the great cause of upheaval of the Colonies against Spain was mainly fiscal and economical. It is, therefore, to these more than to any other aspects that the intelligent Mexican Government has given its attention, with the very reassuring and satisfactory results patent to all the world.

In administering the government of his country, President Diaz and his Ministers have recognised the principle that the burden of taxation upon the people must be as light as possible and the benefits accruing as far-reaching and as full as possible, and I know of no country in the whole world where this same principle has been better applied. Elsewhere I have indicated my conviction that this state of affairs is not merely skin-deep, and that what appears so clearly upon the surface of things is genuinely representative of actual conditions. What has been accomplished during the past quarter of a century in the Mexican Republic is a transformation and not merely a transition. Let this be clearly understood in its real significance, exemplifying Goethe's—"What's genuine, shall posterity inherit."

The nation which was weak is weak no longer; the hand of friendship and goodwill so fearfully and churlishly withheld by all the civilised countries in the world is stretched forth willingly and even anxiously to this new and vigorous young Power; confidence in her integrity, admiration for her rulers and a sincere friendship for her people now represent sentiments which govern Mexico's relations with the rest of the universe.

Here I leave her, persuaded that her destiny is a high one,

her prosperity but on the fringe of its greatness; glad, indeed, to have witnessed the unfolding of a nascent power bound to make history in the world's great doings, and mindful of the many pleasant days passed in the peaceful seclusions of her incomparable scenic possessions; proud to have known, even though slightly, and as I feel wholly insufficiently, a high-minded, whole-souled kindly people, brave, fearless and independent, with the making of their history all before them.

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